

WELCOME

VIRTUAL MEETING WILL BEGIN AT

11:30pm Central

Society of American Military Engineers

Omaha Post

November 14th, 2023 Meeting



Omaha Post Meeting

Society of American Military Engineers

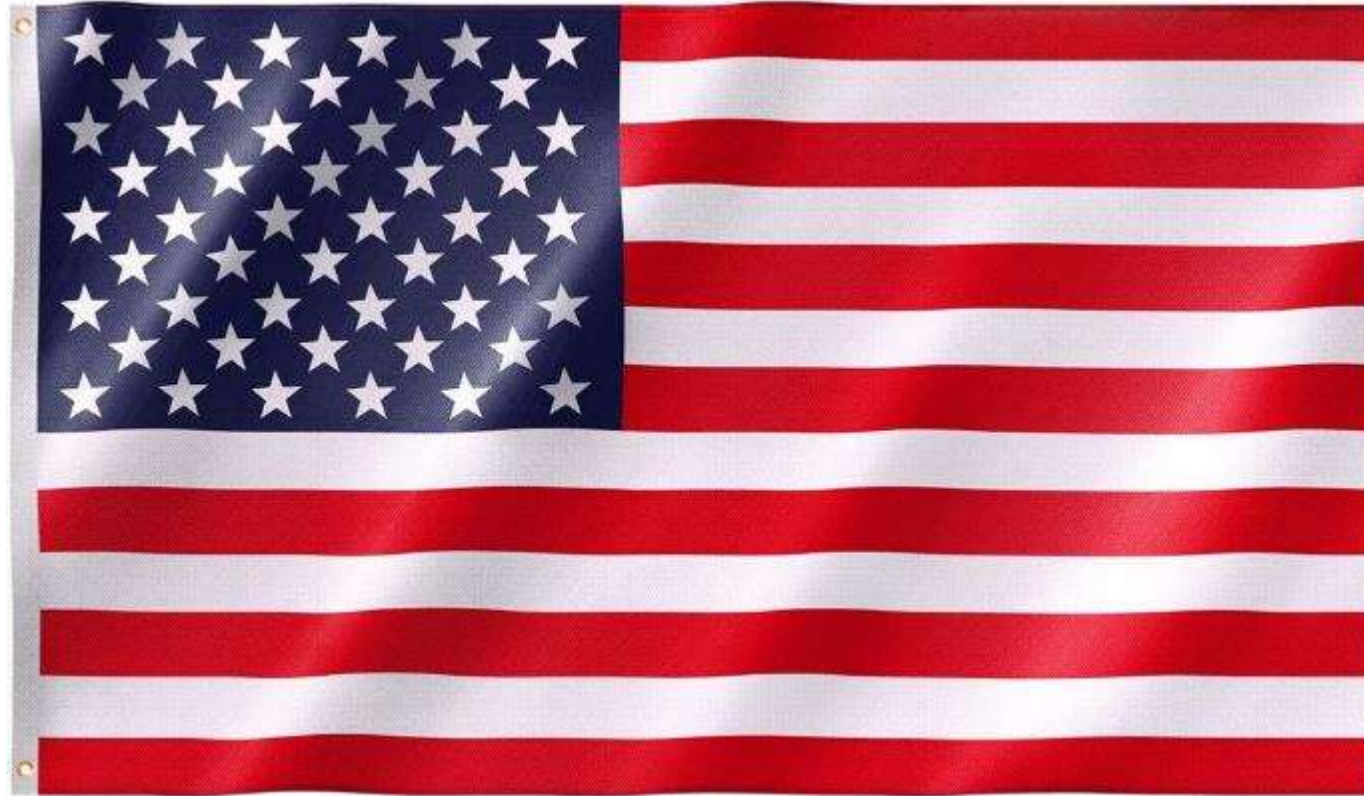
Omaha Post

November 14th, 2023 Meeting

Meeting Agenda

- Pledge of Allegiance
- New Member/ Guest Introductions
- Invocation
- Lunch
- Announcements
- Membership Spotlight
- Presentation
- Q&A
- Split Kitty Drawing
- Closing Remarks

Pledge of Allegiance



I pledge allegiance to the Flag of the United States of America, and to the Republic for which it stands, one Nation under God, indivisible, with liberty and justice for all.

Introductions

Introductions

- Welcome to New Members
- Introduction of Guests

Invocation

Please remain standing

Lunch

Dismiss by table

Announcements

- **December Membership Meeting**

- ▶ December 12, 2023 @ Field Club
- ▶ Topic: USACE-Omaha District Program Update

- **January Membership Meeting**

- ▶ January 11, 2023 @ Scott Conference Center
- ▶ Topic: Advances in Metal Roof Technology – Roger Melvin (Building Works) and Charlie Smith (Architectural Metal Roofs)

Announcements

- **Annual Scotch Tasting** – Tentatively scheduled for the evening of December 13th – details to come once finalized
- **E-Week 2024 Banquet** – Evening of February 2nd, 2024
- **SMP Competition & Awards** – April 11th, 2024 at Scott Conference Center
- **Omaha Industry Days** – May 29th-May 31st, 2024 at CHI Center

Membership Spotlight

POND

Defense | Federal



Competitive Advantages:

- Full Service | Multi Discipline
- POL Assessment & Design
- Military Facility Planning
- SCIF | Anti-Terrorism - Force Protection | Cyber

Infrastructure



Competitive Advantages:

- Full Service | Multi Discipline
- Aviation Design
- Roadway Design
- Bridge Engineering
- Multi-Modal Design Expertise
- State & Municipal Specialist

Energy



Competitive Advantages:

- Full Service | Multi Discipline
- EPA | Regulatory Driven Services (coatings, inspection, testing, integrity, corrosion)
- Global Design, Construction & Repair Capabilities
- Coatings, Cathodic, Integrity Management

Industrial



Competitive Advantages:

- Hazardous & Emission Control Expertise
- P&ID, I&C Capabilities
- Food | Medical | Manufacturing
- Full Service | Multi-Discipline
- Regulatory Compliance

Perkins County Canal

Thomas Riley,

Director

Nebraska Department of Natural Resources

Perkins County Canal Project and Bonus Information...

Tom Riley, Director NeDNR

NEBRASKA

Good Life. Great Water.

DEPT. OF NATURAL RESOURCES

14 November 2023

Society of American Military Engineers—Omaha Post

What is NeDNR about...

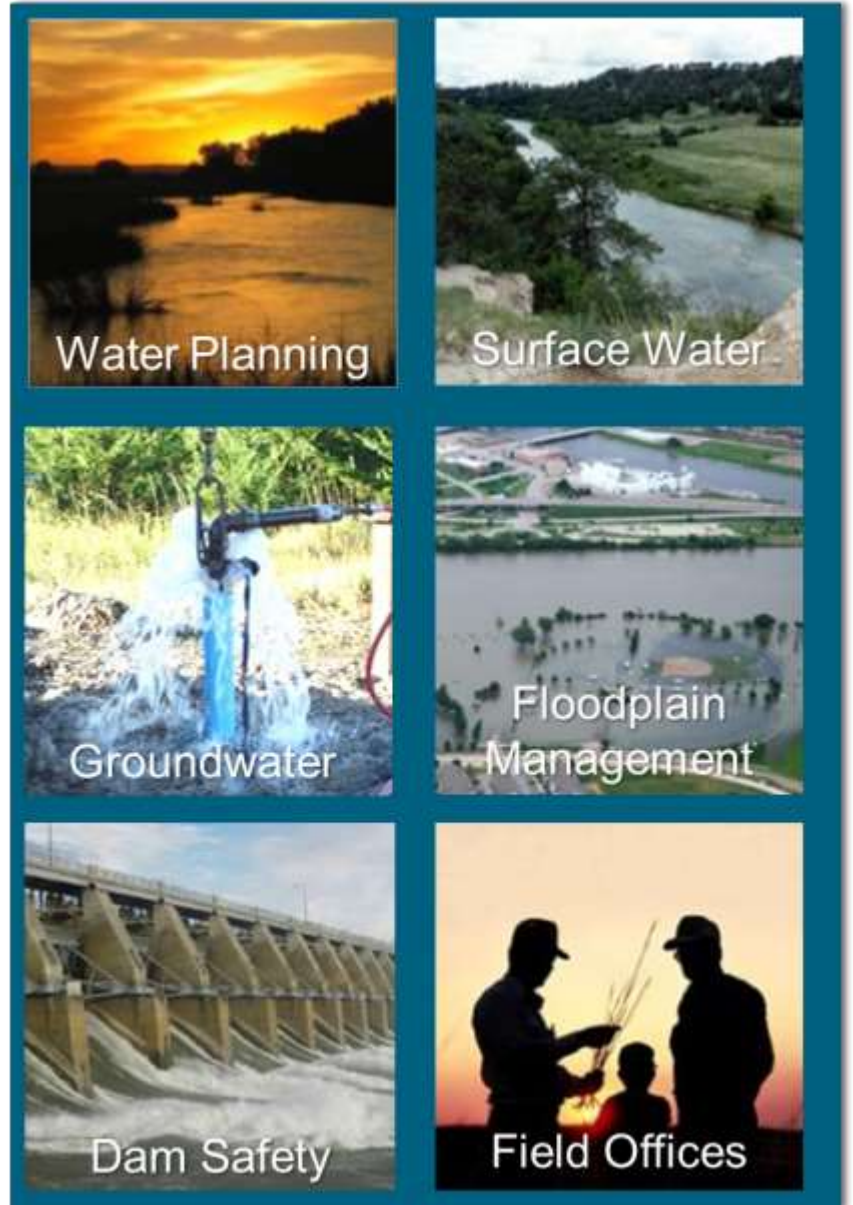
Around 110 Engineers, Scientists, Attorneys, & Technicians that are the state's experts in water planning and management

NeDNR Mission:

- Safeguarding Nebraska's most precious natural resource through sound partnerships, cooperation, and science-based decision making to help grow Nebraska's future.

Vision:

- The Nebraska Department of Natural Resources is dedicated to the safe, sustainable use, and proper management of the state's most precious natural resource; Water for the future benefit of all Nebraskans.



Historic Legislative Focus on Water

- The 2022/23 legislative session ushered in historic support for water projects
- Governor and the Legislature worked together to develop water initiatives
 - Secure existing and future water supplies for Ag, Municipal, and Industry
 - Drive the tourism economy across the state
 - Support ageing irrigation infrastructure
- The Nebraska Department of Natural Resources has been charged with managing these projects.

2022 Legislative Water Actions

- Appropriation Bills
 - LB1011, LB1012, LB1013, and LB1014 (ARPA)
- New Authorities
 - LB925, LB1015, and LB1023

New Appropriations

- LB1011, LB1012, and LB1013 (Appropriation Bills)
 - \$53.5M now \$628M – Perkins County Canal Project Fund for design, engineering, permitting, and options to purchase land related to building a canal as outlined by the South Platte River Compact
 - \$100M – Jobs and Economic Development Initiative Fund (JEDI) shall be available for feasibility and public water supply studies, flood mitigation costs and an independent study of public water supply impacts (Lower Platte focus)
 - \$50M – Surface Water Irrigation Infrastructure Fund (SWIIF) grants to irrigation districts to be used for repair or construction of any headgate, flume, diversion structure, check valve, or any other physical structure used for irrigation projects. Award grants, not to exceed five million dollars per applicant, requires 10% match by applicant
- LB1014 (ARPA)
 - \$23.1M – grant to an irrigation district which is part of an interstate irrigation system that experienced a failure (Gering-Fort Laramie Canal)
 - \$20M – grant to a city of the primary class that utilizes more than thirty million gallons per day of water to be used for the design, construction, and implementation of additional water supply projects, which shall only be used for such purpose. Eligible project costs shall include, but not be limited to, costs for a water treatment plant, land acquisition, acquiring permits, a wellfield, pumping, and transportation of water over twenty-five miles for the purpose of providing potable water to the city (Lincoln)

New NeDNR Authorities

- LB1023 – JEDI Act: support Wahoo Creek watershed flood control projects, Schuyler levee rehab., study impacts to municipal supplies from potential lake, identify land for potential lake, work through partnerships to raise funds for construction
- LB925 – Resilient Soils and Water Quality Act : work to develop a producer learning community to support implementation of best-management practices for soils management and water quality
- LB1015 – Perkins County Canal Project Act : develop, construct, manage, and operate the Perkins County Canal Project

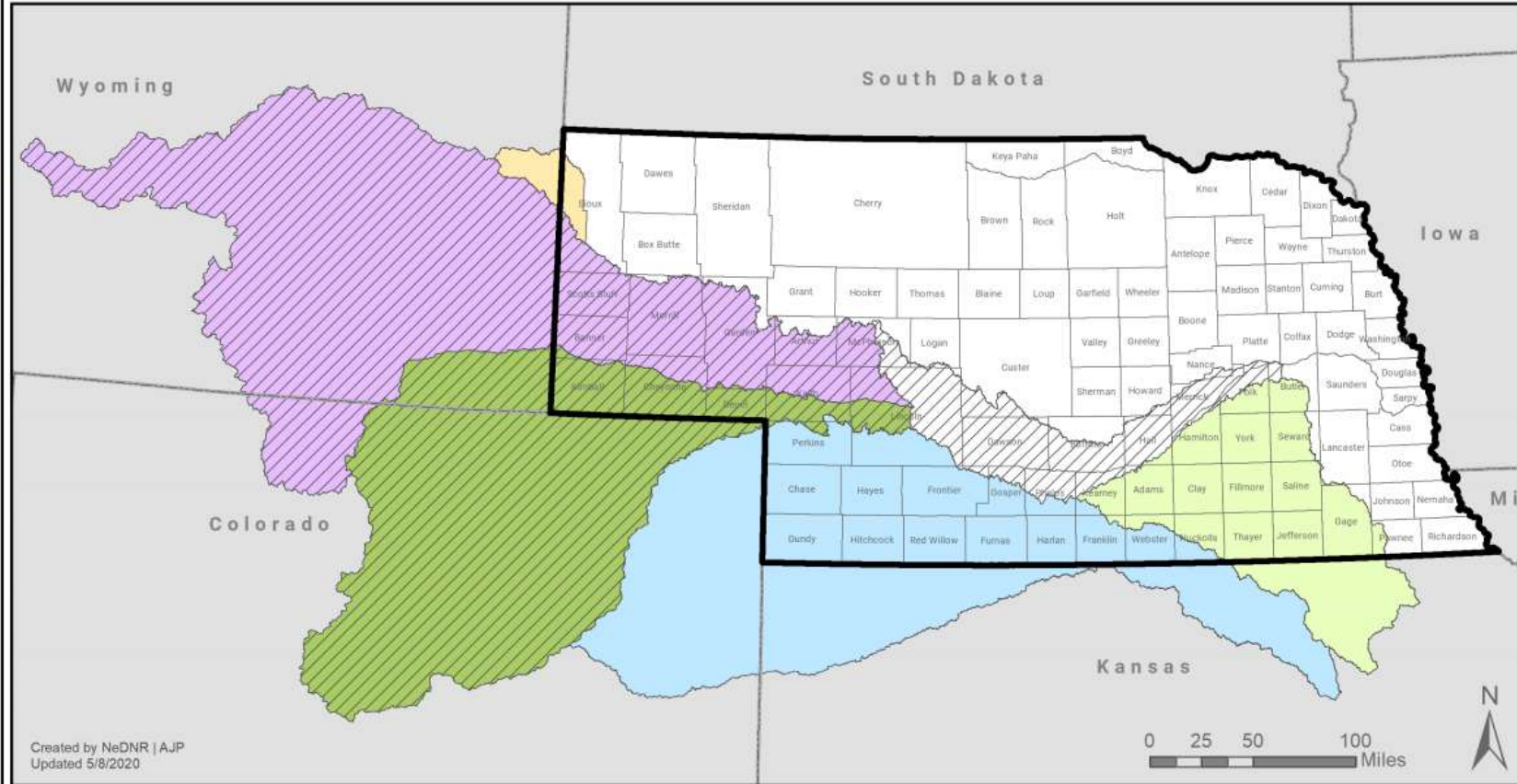
Timeline

- Pre-2016—Nebraska Water Users/Stakeholders
- 2016—CO Legislature Adopts HB16-1256. “Excess flows” to NE
- 2017—Report published. 300,000 AF “Excess flow” Leaving CO
- 2019—NE Legislature Provides funds to DNR for detailed evaluations of CO plans
- 2019—Colorado River Drought Contingency plan places more pressure on SP
- 2021—CO Basin Implementation Plan. Accelerating \$10B to take “Excess Flows”
- 2022—NE Governor and Speaker announce plans for Canal to exercise water right
- 2022—NE Legislature passes LB1015 and LB1012 (initial funding)
- 2022—Independent Study Submitted to the Legislature December 2023
- 2023—Engaged Consultant for Design and Permitting
- 2023- Full Funding allocated by Nebraska Legislature (\$628M)

NEBRASKA

DEPT. OF NATURAL RESOURCES

Interstate Compact, Decree, and Agreement Areas



PRRIP Agreement



North Platte River Settlement



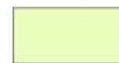
Republican River Compact



Upper Niobrara River Compact



South Platte River Compact

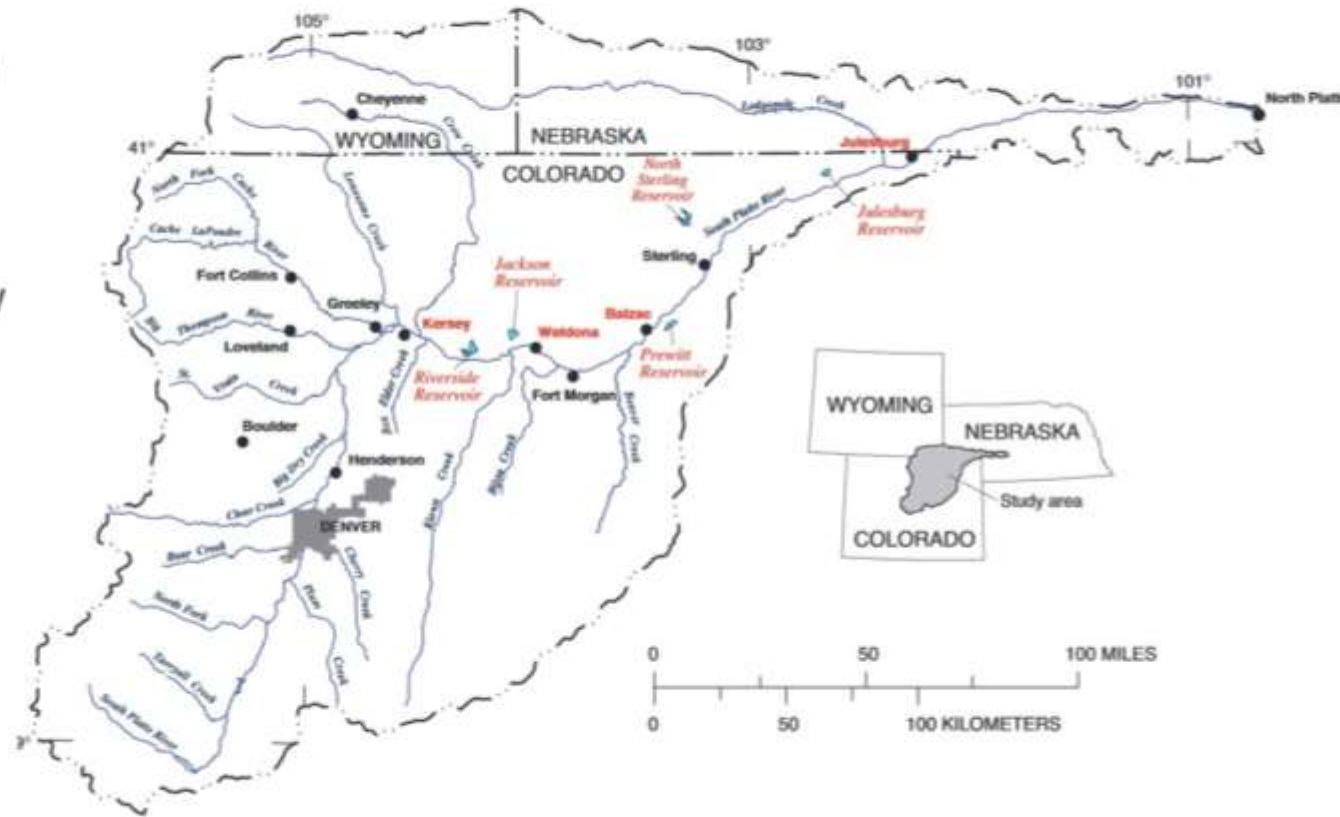


Big Blue River Compact

Perkins County Canal Project (LB 1015)

South Platte Compact

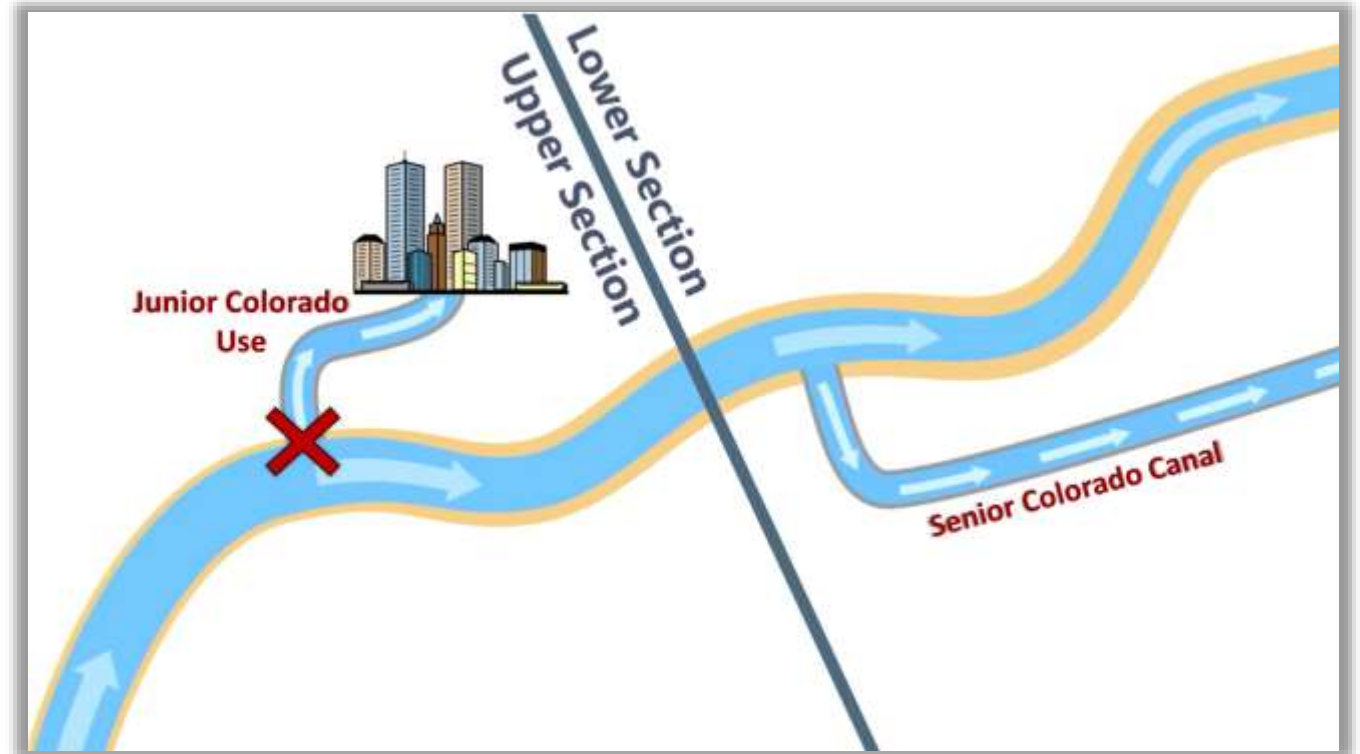
- Signed in 1923 and passed by Congress in 1926
- Establishes a 120 cfs (47 KAF) minimum flow during the irrigation season (Western Canal)
- Establishes a 500 cfs minimum flow during the non-irrigation season (Perkins County Canal, not currently developed)



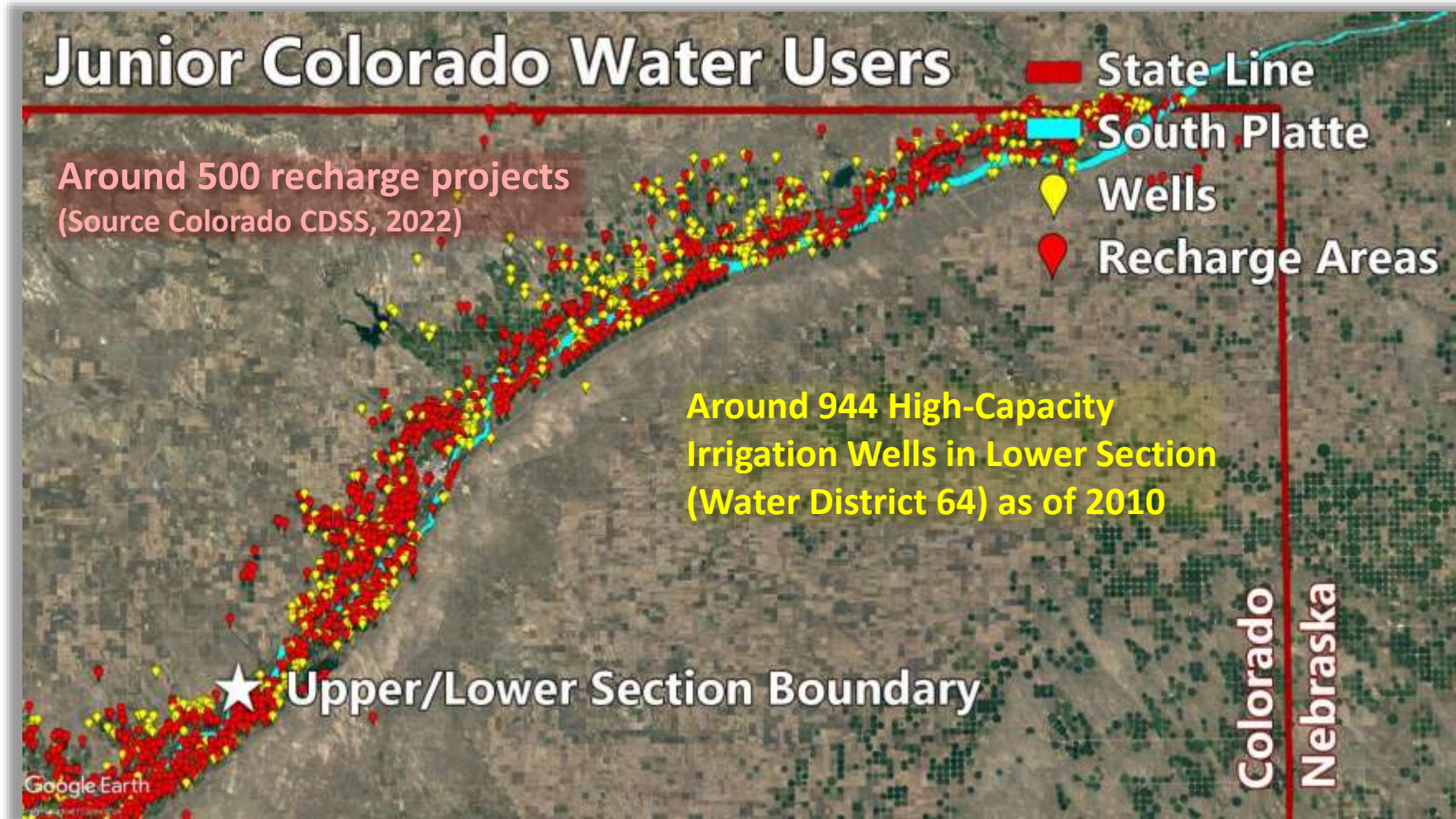
Base from U.S. Geological Survey and U.S. Census Bureau digital data, 1974 to 1993

Upper/Lower Section Connections

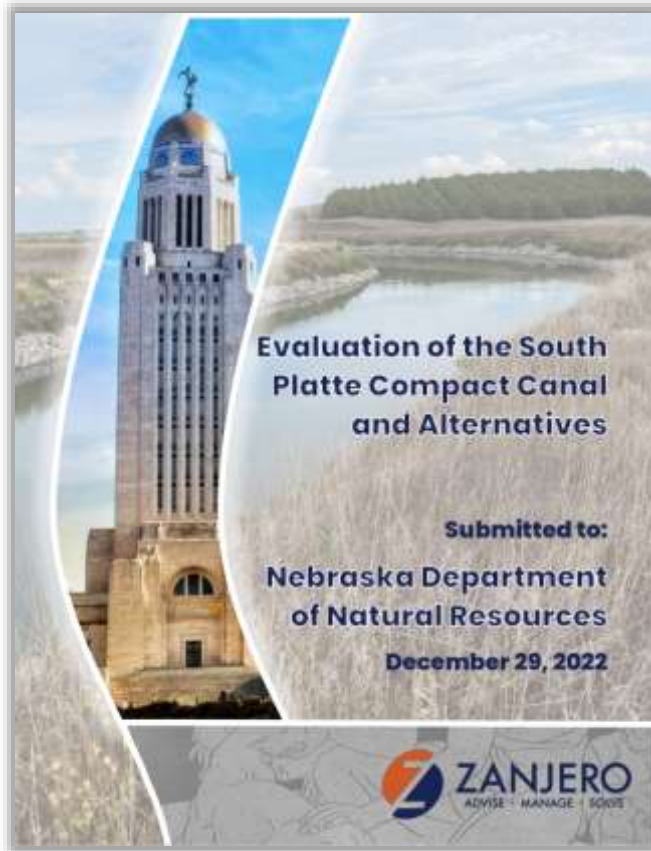
While the Compact divides this portion of the basin into an Upper and Lower Section, Colorado law does not recognize that distinction, so Lower Section users junior to the Perkins County Canal could still call out users in the Upper Section with rights junior to theirs.



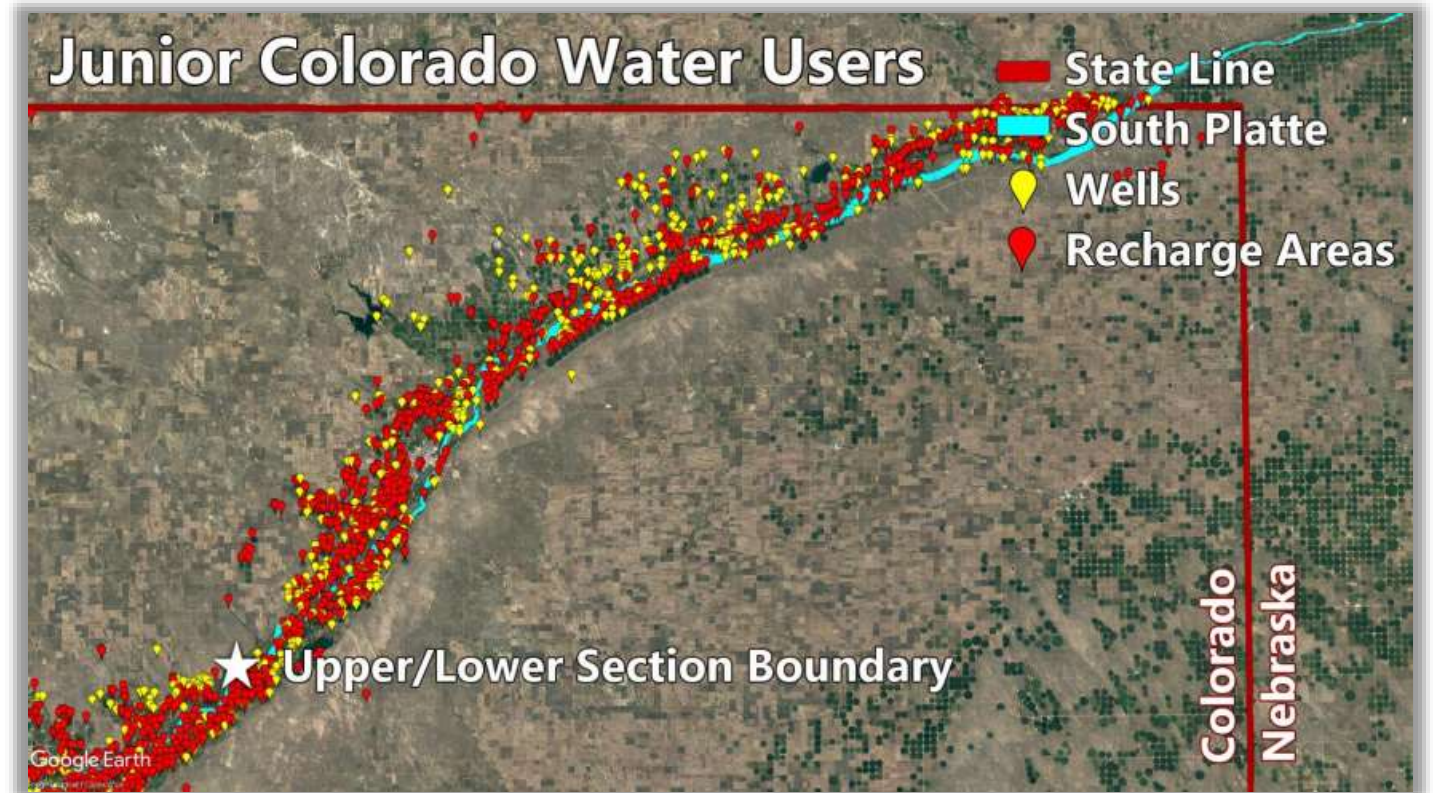
Existing Junior Groundwater Wells and Augmentation Structures



These uses (as well as existing Colorado augmentation projects and groundwater wells) will be junior to the Canal.

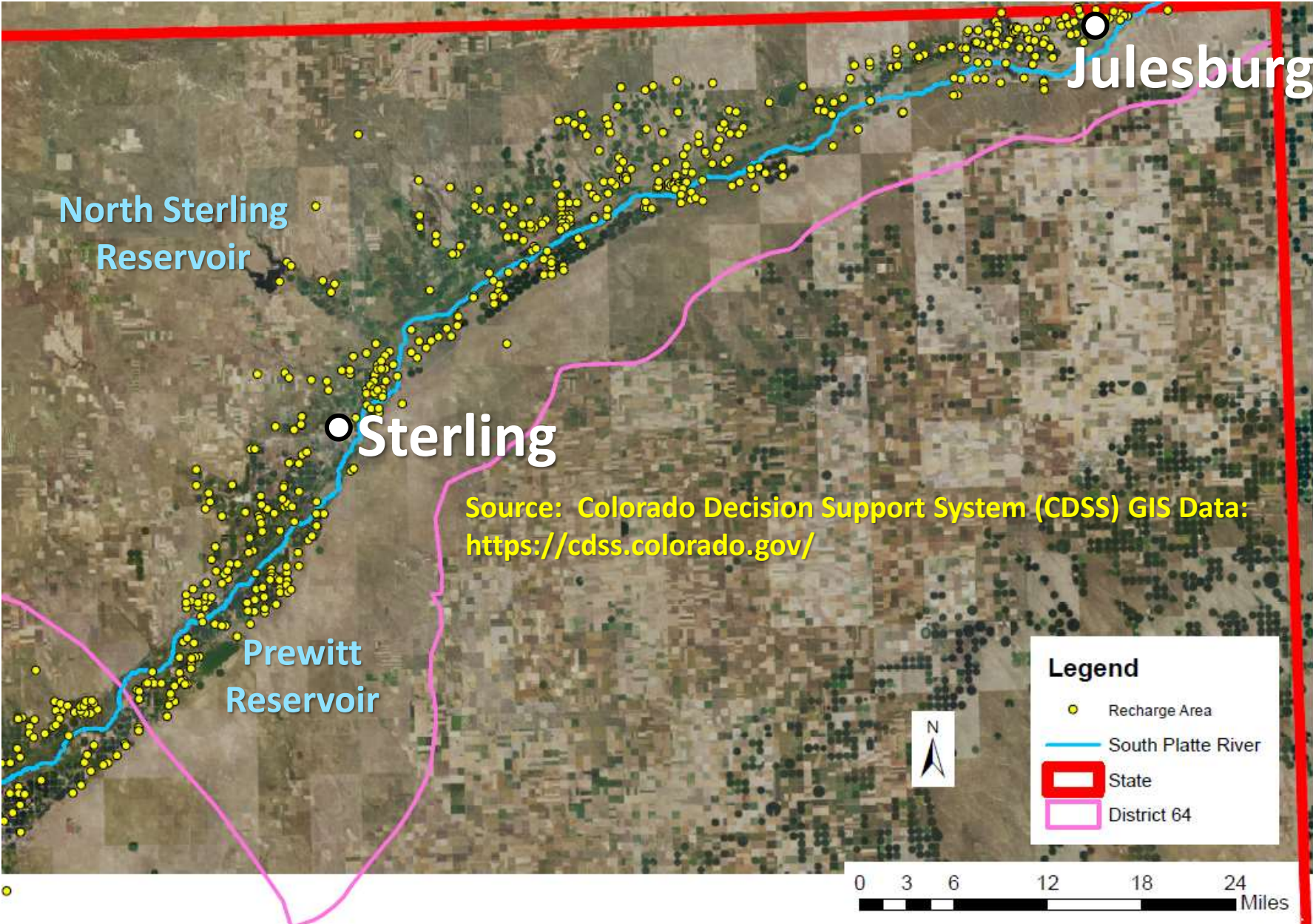


Analyses show that roughly 75 kaf – 100 kaf of water will be available to Nebraska during the winter season when the canal is operating.



So, Canal depletions would be no greater than current junior Colorado depletions that have already been authorized in the Lower Section under the Program.

Recharge Areas in Lower Section (Water District 64)



- Around **500 recharge projects** currently (Source Colorado CDSS, 2022)
- Recharge augmentation about **92,000 acre-feet/year** 2008-2012 (HB12-1278 Report to Colorado Legislature 2013)

“Junior” Non-Irrigation Season Diversions in Colorado



Irrigation Well Depletions

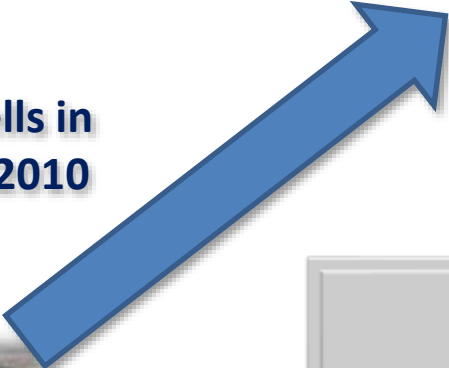


Around 944 High-Capacity Irrigation Wells in Lower Section (Water District 64) as of 2010

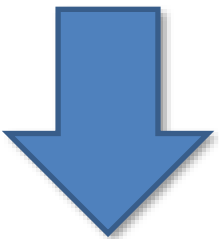
Recharge Diversions



Around 500 recharge projects
(Source Colorado CDSS, 2022)

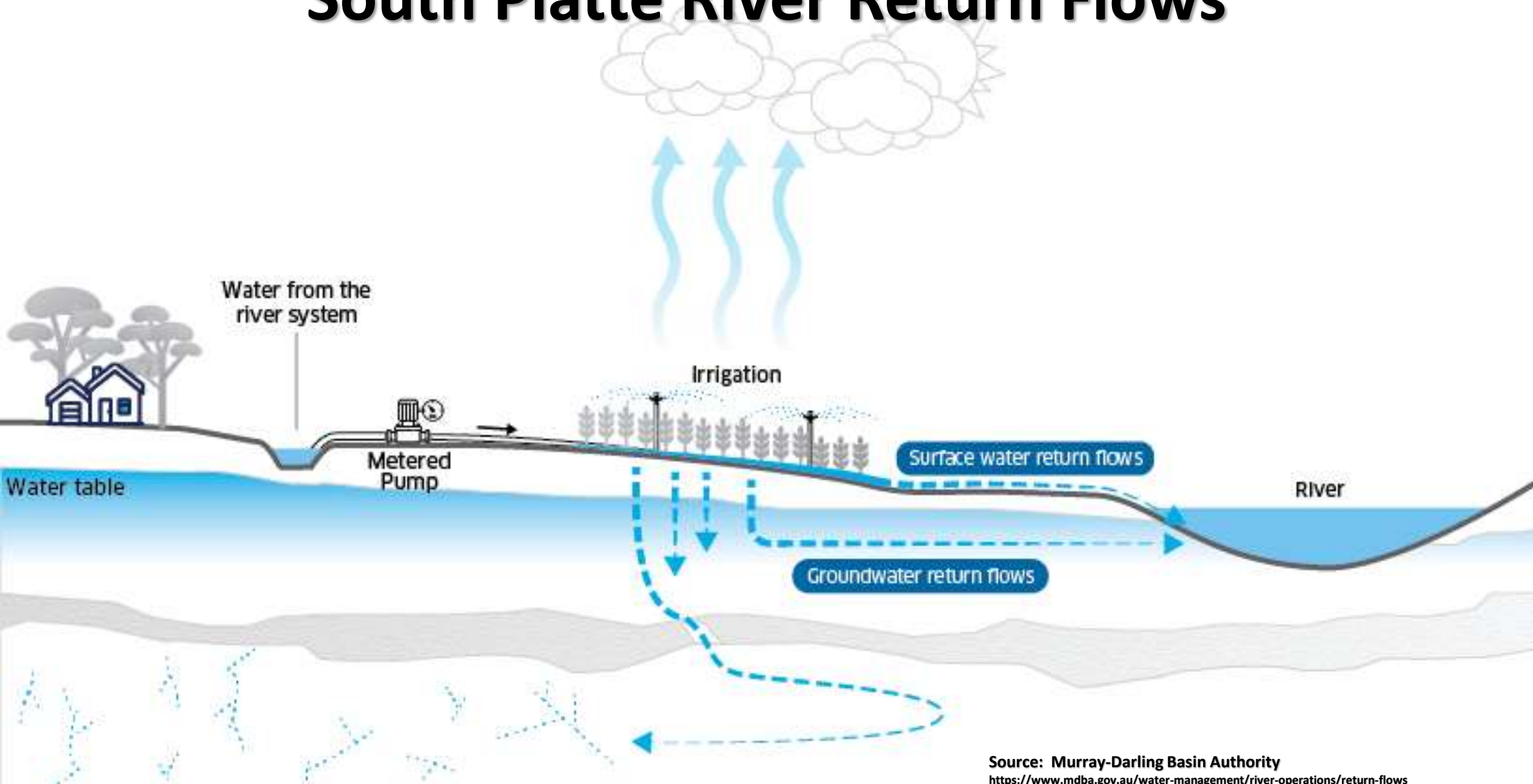


~90 kAF
Combined



~270 cfs
Diversions Junior
to Article VI Call

South Platte River Return Flows



Source: Murray-Darling Basin Authority

<https://www.mdba.gov.au/water-management/river-operations/return-flows>

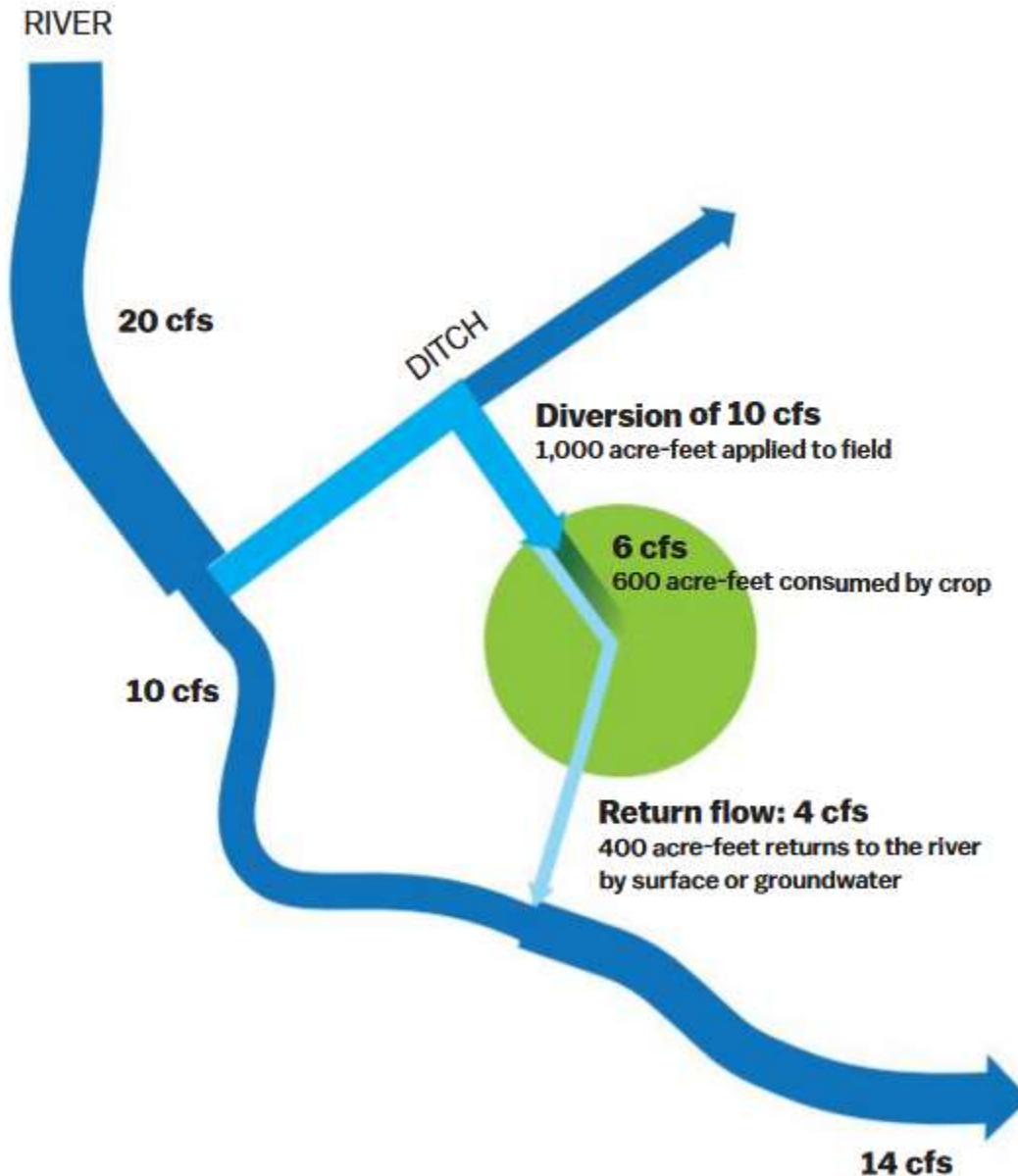
South Platte River Return Flows

Dynamics of a Return Flow

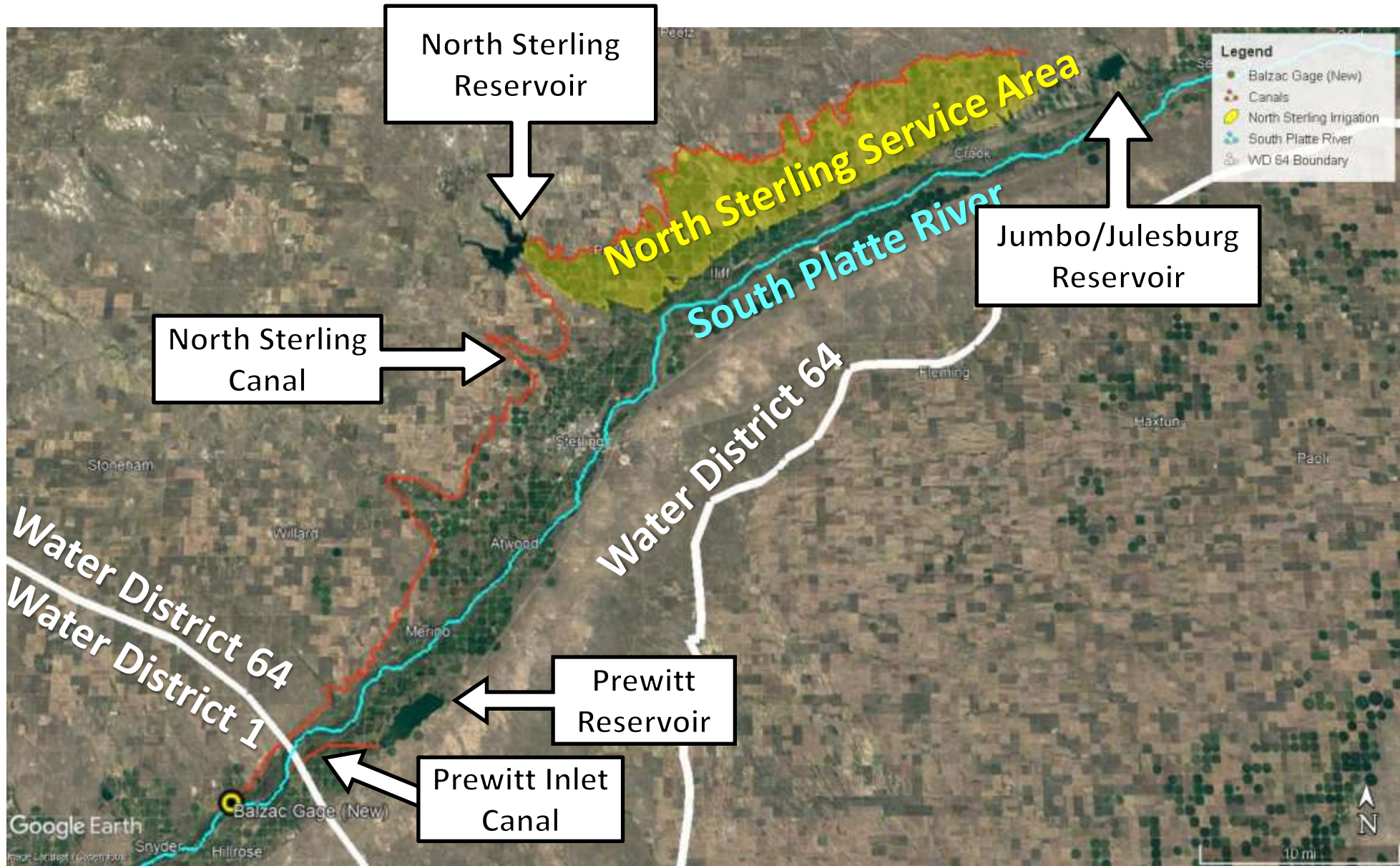
Return flow is surface water or groundwater that returns back to rivers or shallow aquifers after being applied to beneficial use. In most irrigation systems, crops consume a portion of the water applied and unused water becomes a return flow.

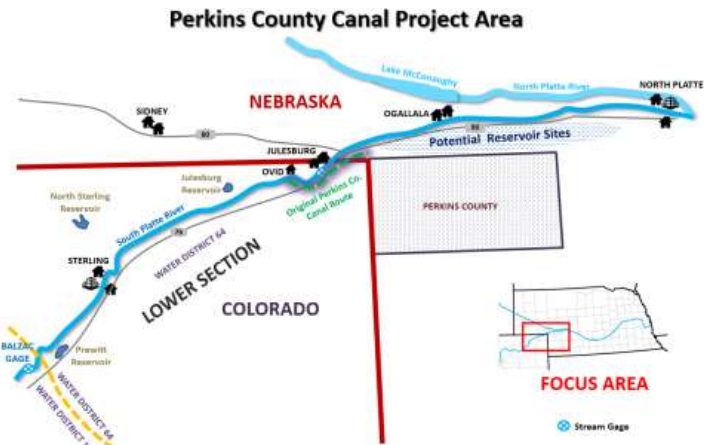
In many places in Colorado, return flows make their way back to the river only to be diverted and return to the river again before finally exiting the state. Downstream water users depend on these return flows to fulfill their water rights. For this reason, when an agricultural water right is sold and transferred to another beneficial use, the future consumption of that water is limited to the beneficial historical consumptive use of the original water right.

In this example, an agricultural diversion takes 10 cubic feet per second. The irrigator applies that water to their crop, but the crop consumes only 60 percent. The remaining water will eventually make its way back to the river and can be diverted and used by downstream water users—assuming it's not lost to evaporation, is not intercepted by plants, and does not infiltrate into the aquifer.

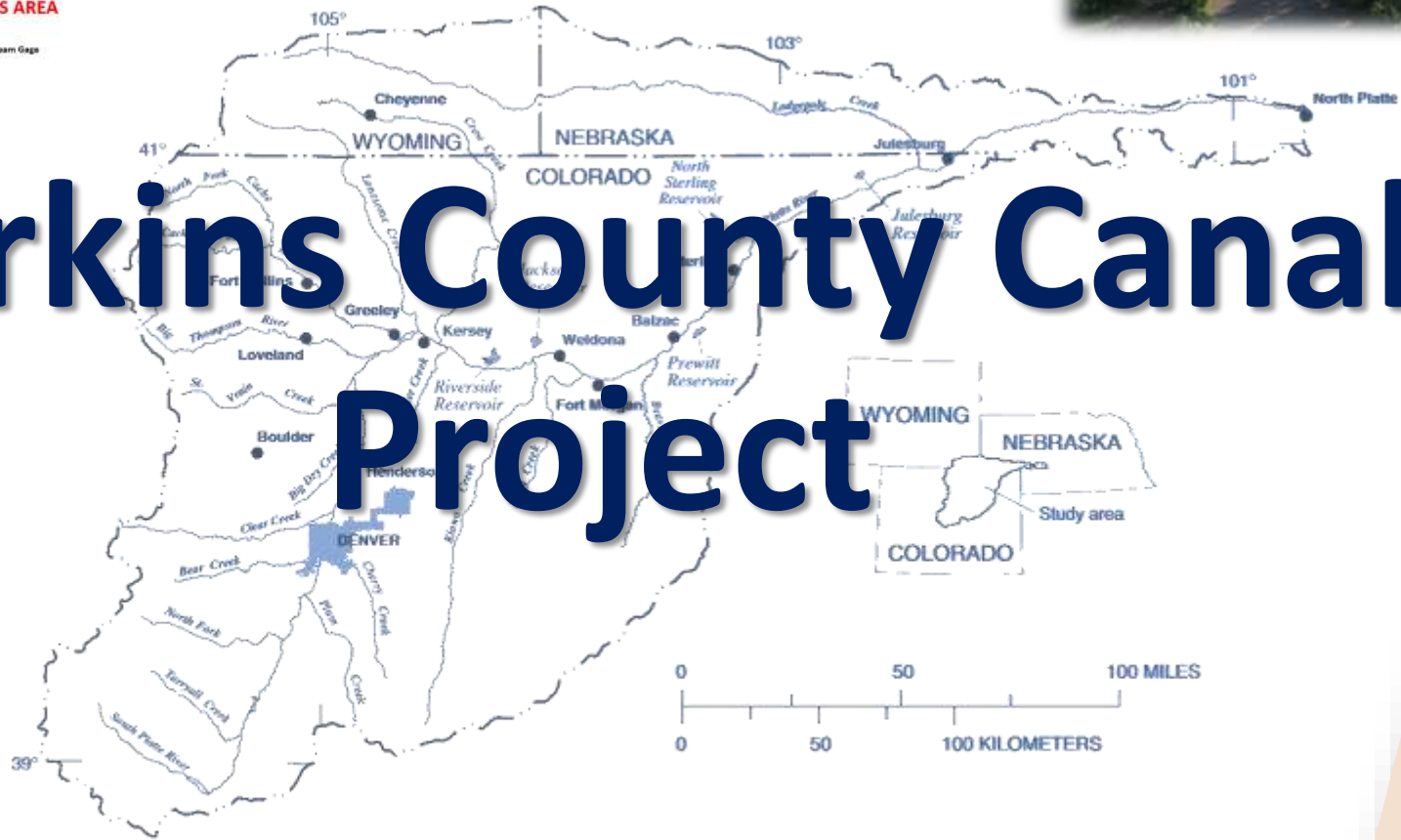


North Sterling/Prewitt





Perkins County Canal Project



Base from U.S. Geological Survey and U.S. Census Bureau digital data, 1974 to 1993



Article VI of South Platte Compact

ARTICLE VI.

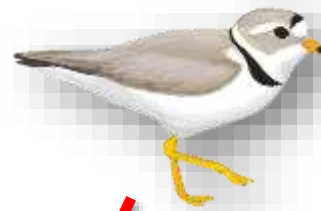
It is the desire of Nebraska to permit its citizens to cause a canal to be constructed and operated for the diversion of water from the South Platte River within Colorado for irrigation of lands in Nebraska; that said canal may commence on the south bank of said river at a point southwesterly from the town of Ovid, Colorado, and may run thence easterly through Colorado along or near the line of survey of the formerly proposed "Perkins County Canal" (sometimes known as the "South Divide Canal") and into Nebraska, and that said project shall be permitted to di-

“It is the desire of Nebraska to ... cause a canal to be constructed and operated for the diversion of water from the South Platte River within Colorado, for irrigation of lands in Nebraska; ... and that said project shall be permitted to divert waters of the river as hereinafter provided.”

MAP
OF THE
SOUTH DIVIDE CANAL



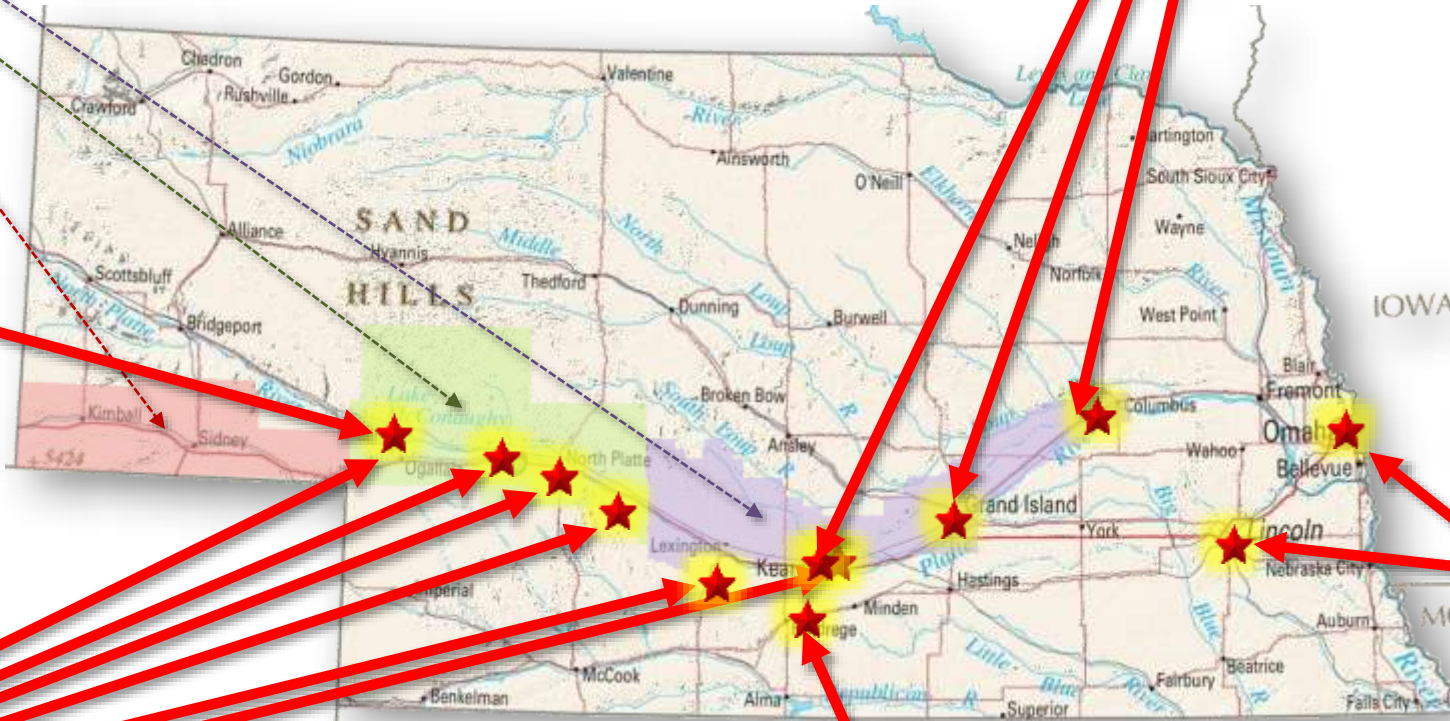
**SPNRD, TPNRD, CPNRD,
and other Natural
Resources Districts**



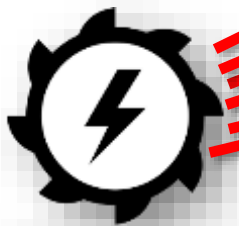
**Environmental Flows
(PRRIP, Instream Flows)**



**Lake McConaughy
Operations**



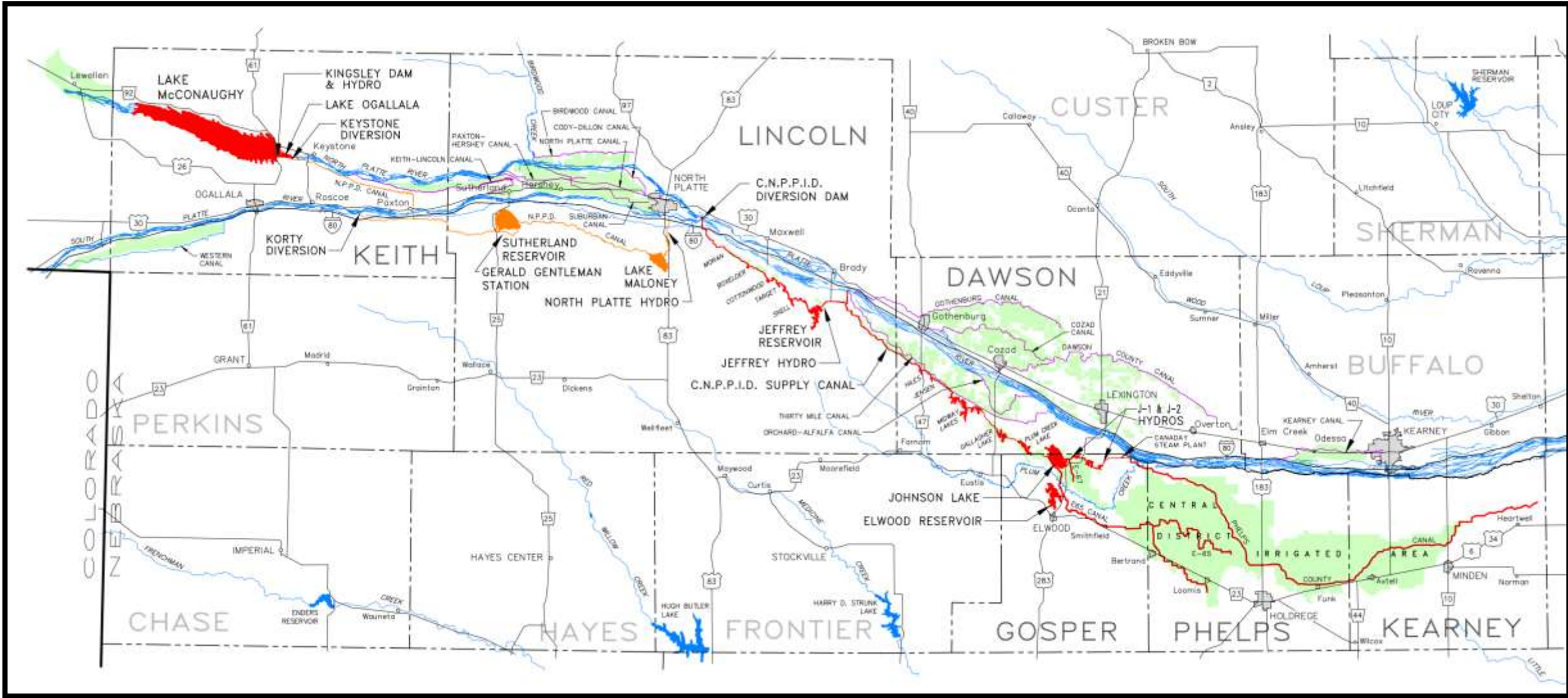
**Municipal Supplies
(Lincoln, Omaha,
Others)**



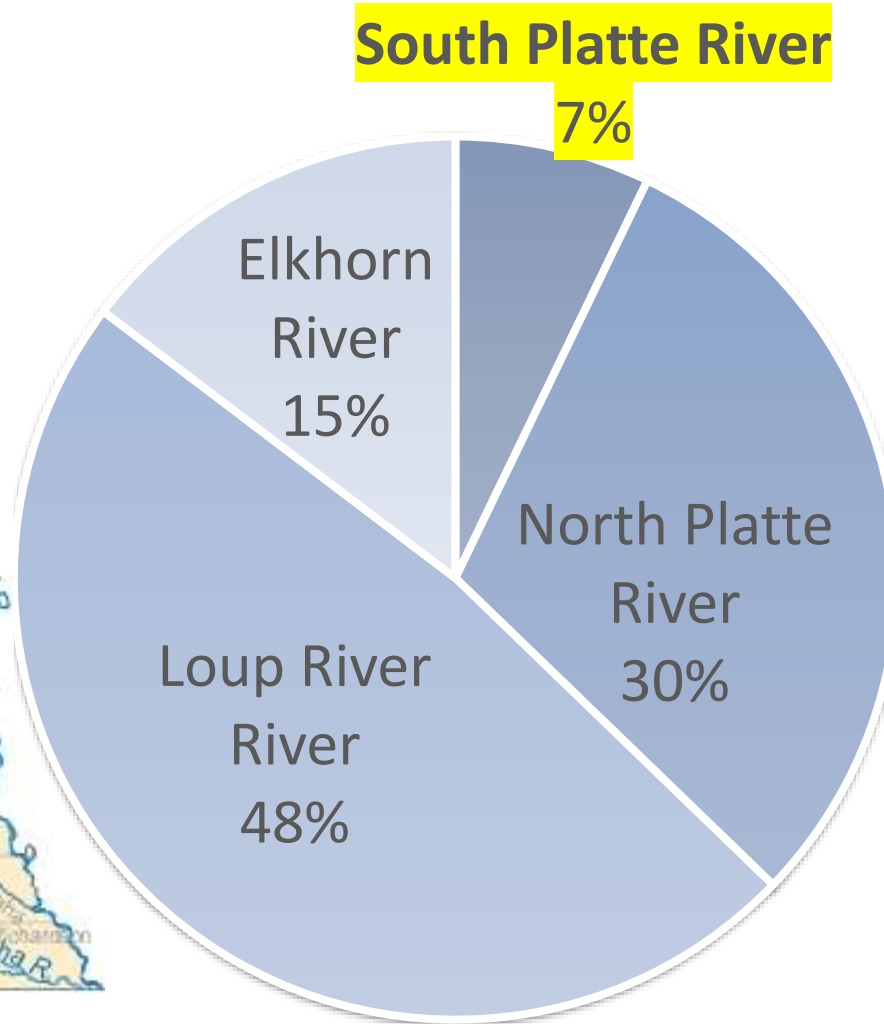
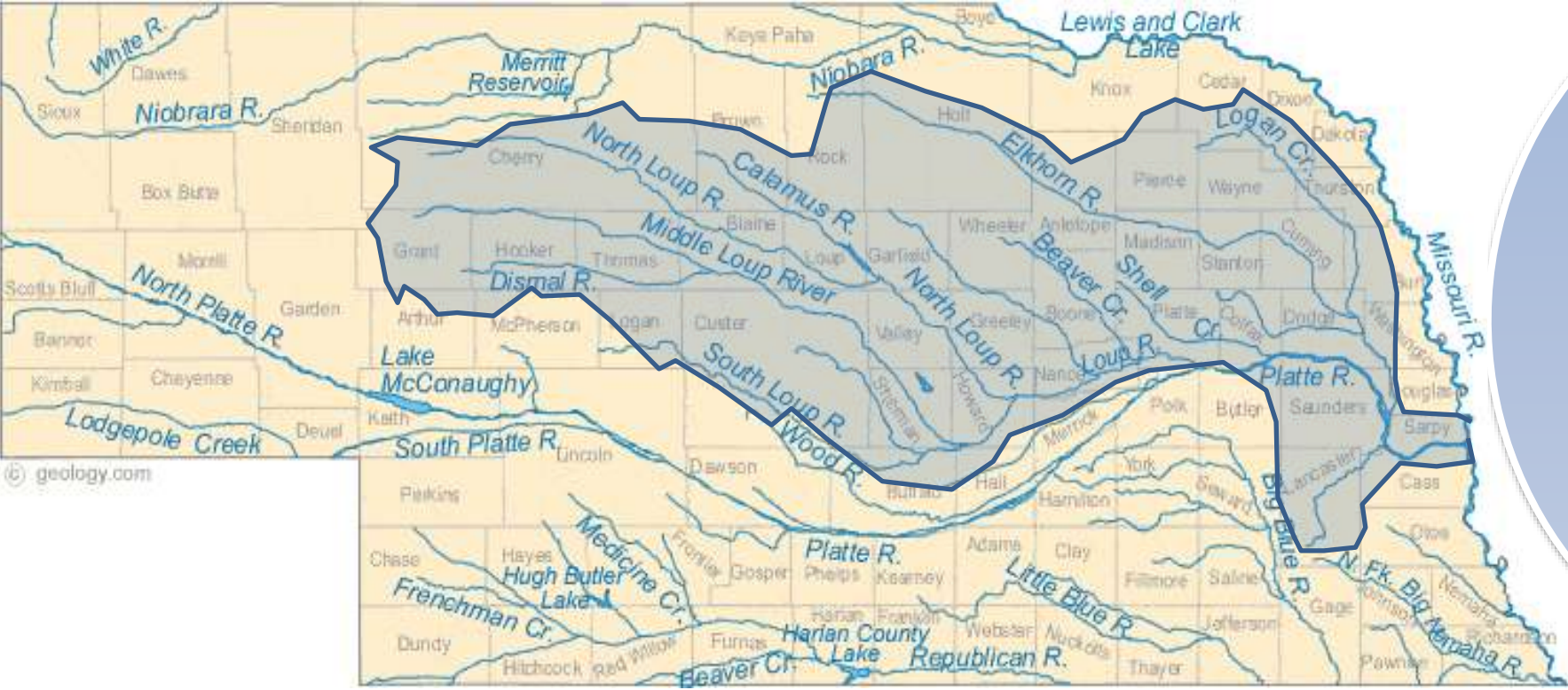
**Hydropower and
Power Plant Cooling**



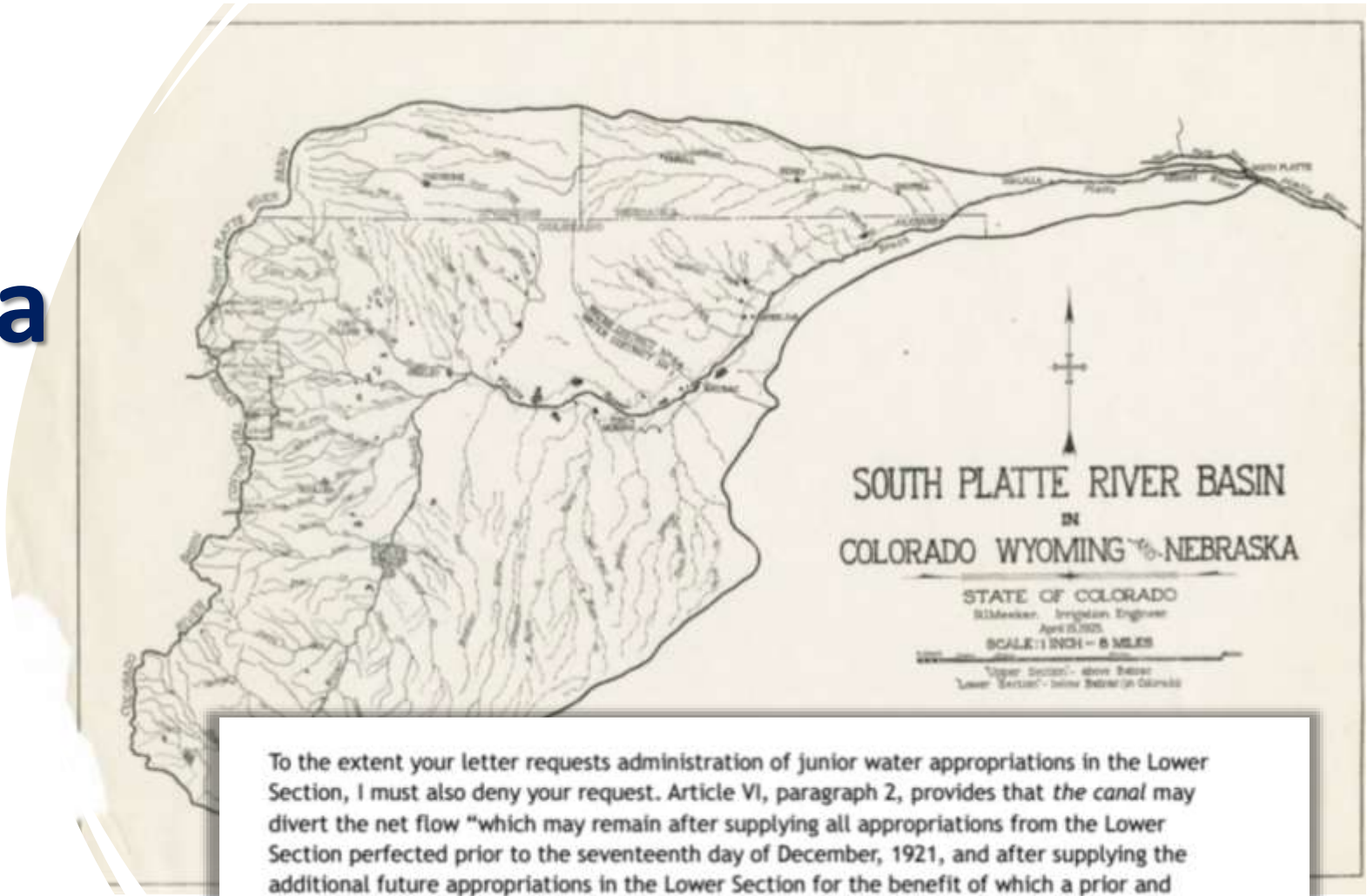
**Agricultural Water
Use and Costs
(throughout basin)**



Lincoln Wellfield Contributing Water Sources 2012



Why is Nebraska building the Perkins County Canal?

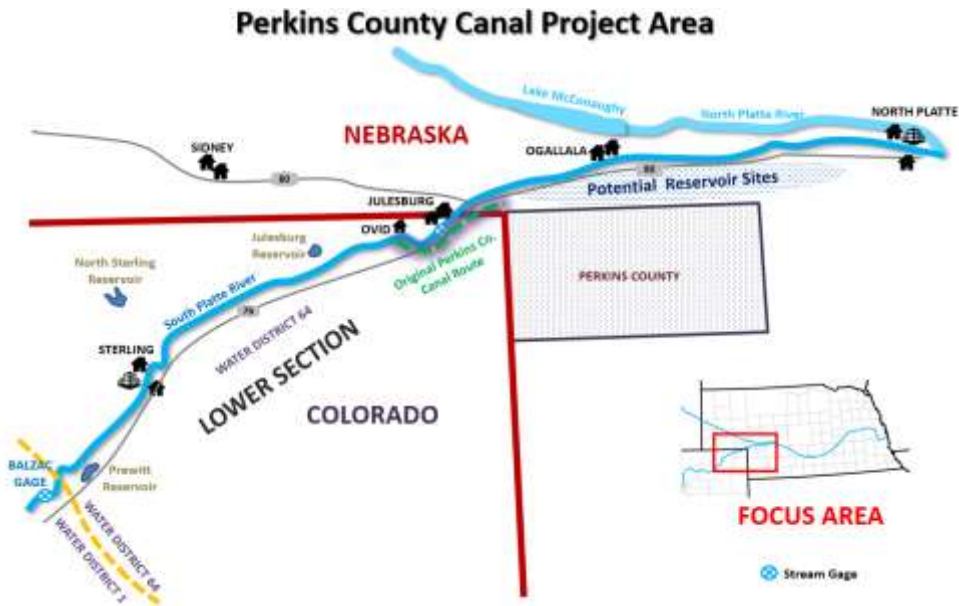


To the extent your letter requests administration of junior water appropriations in the Lower Section, I must also deny your request. Article VI, paragraph 2, provides that *the canal* may divert the net flow "which may remain after supplying all appropriations from the Lower Section perfected prior to the seventeenth day of December, 1921, and after supplying the additional future appropriations in the Lower Section for the benefit of which a prior and preferred use of thirty-five thousand acre-feet is reserved" for Colorado, among additional limitations in the Compact. Because Nebraska has not constructed the Perkins County Canal, there is no basis for Colorado to administer junior water appropriations in the Lower Section

1313 Sherman Street, Room 821, Denver, CO 80203 P 303.866.3581 dwr.colorado.gov
Jared S. Polis, Governor | Dan Gibbs, Executive Director | Kevin G. Rein, State Engineer/Director

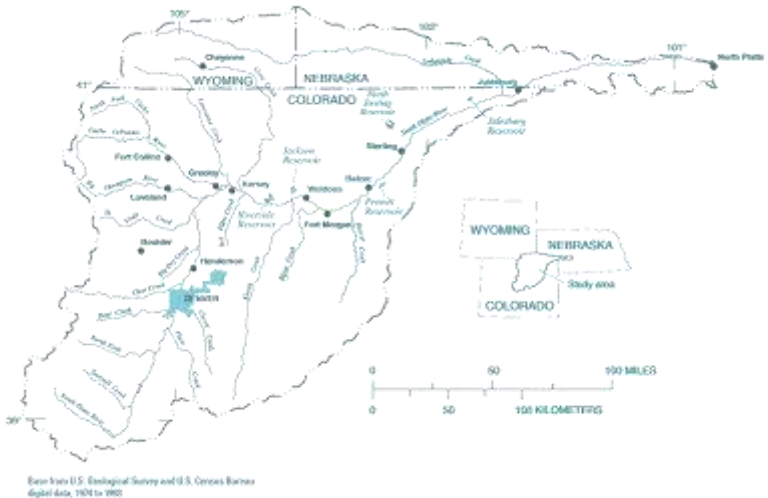


December 15, 2022, Letter from Kevin Rein (Colorado State Engineer)

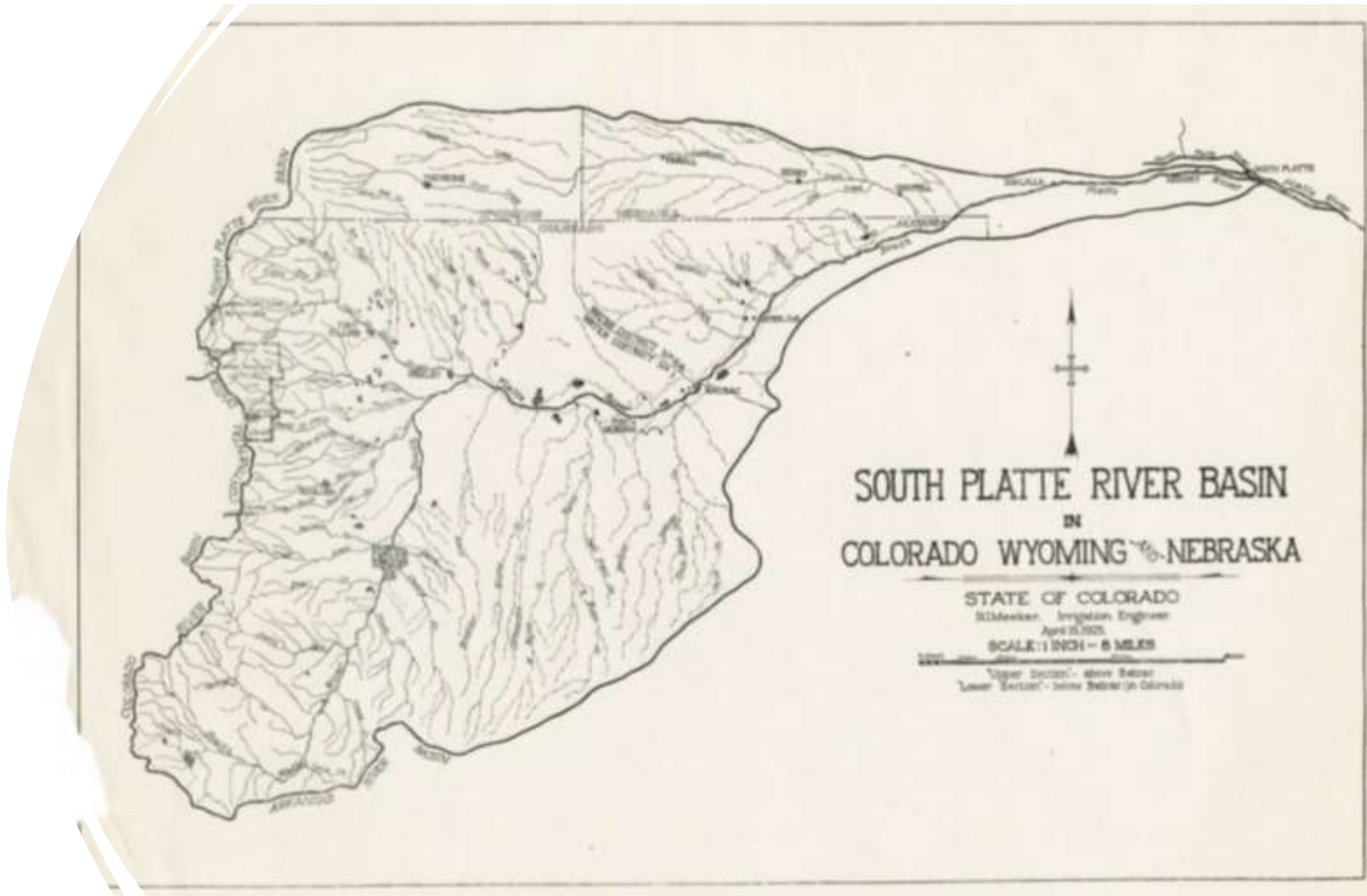


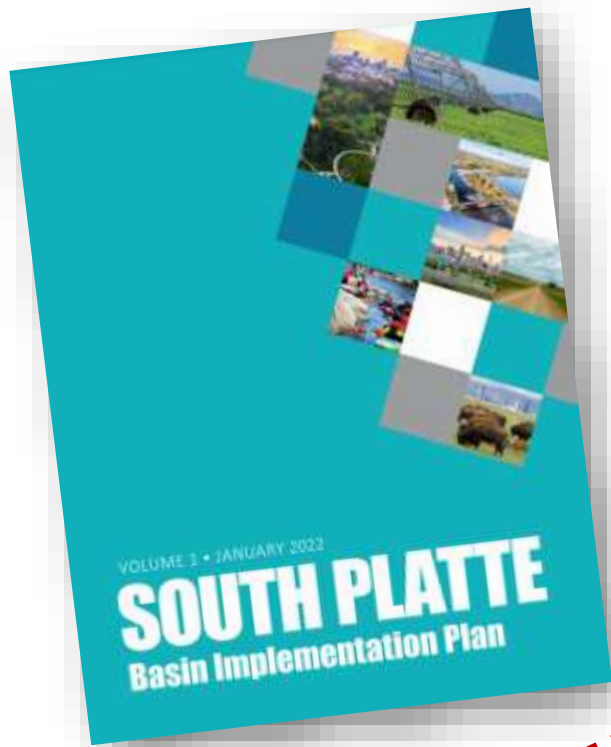
The South Platte River Compact conditions Nebraska's winter season water entitlement on construction of the Canal. Without the Canal, Nebraska cannot exercise this entitlement.

When the Canal is constructed, water will continue to flow into Nebraska when Nebraska calls on its 1921 priority.

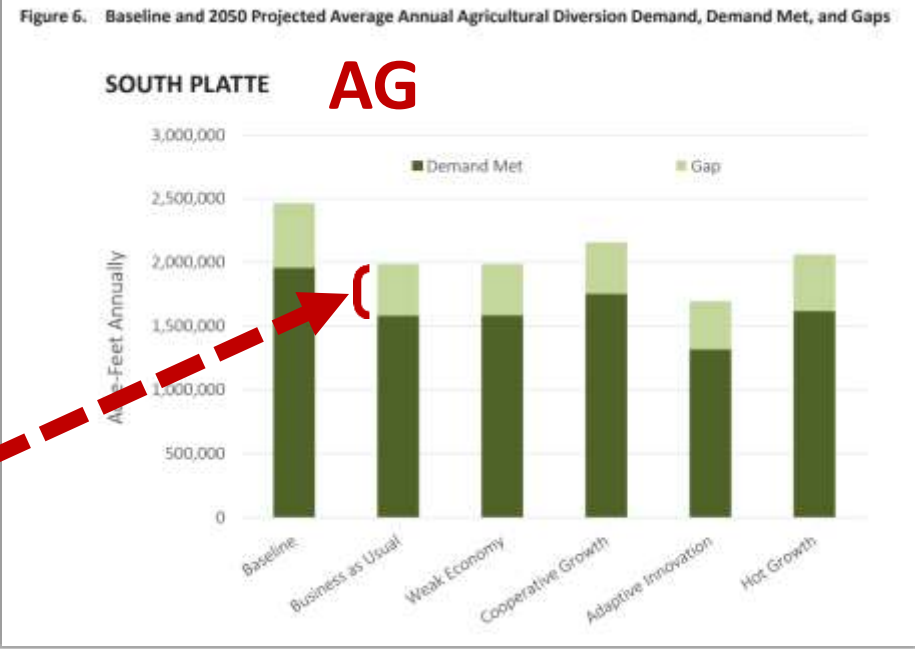


Foreseeable Future Without the Canal

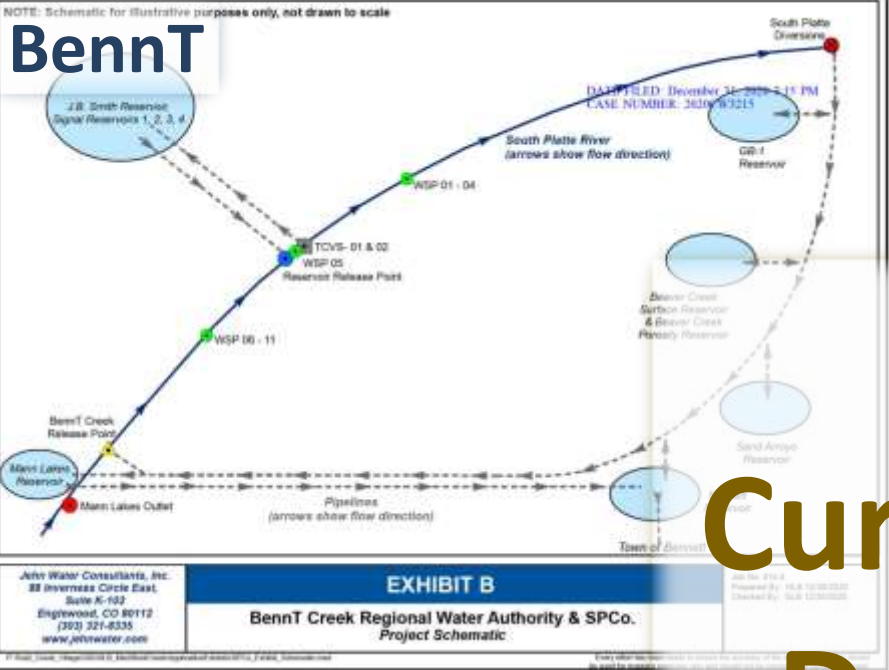




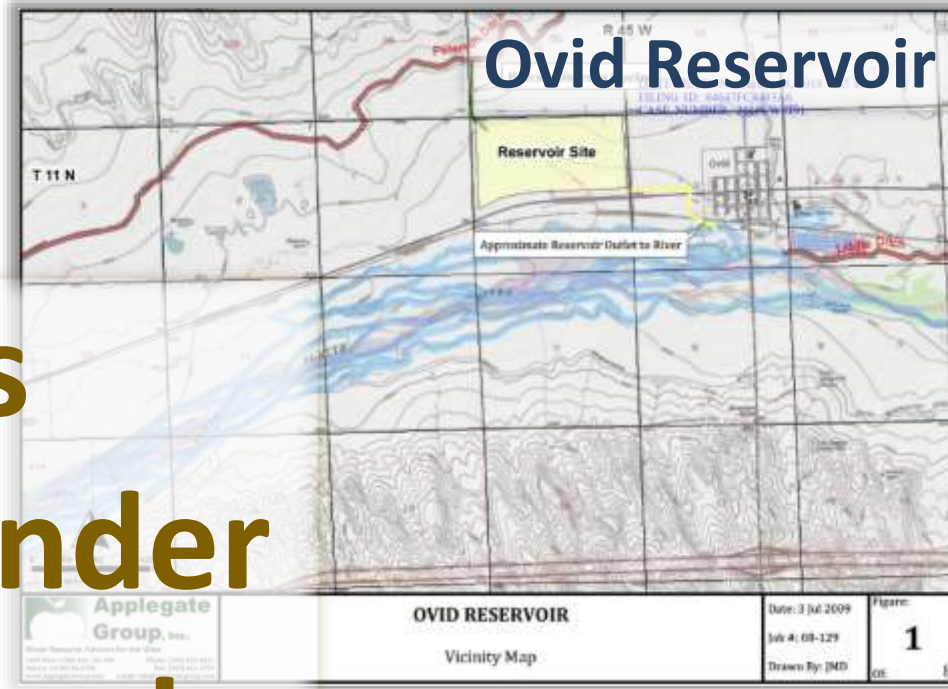
Colorado legislation, policies, and planning documents identify a substantial shortage (over **400 kaf** for agriculture and around **250 kaf** for municipal uses) needed to meet Colorado's 2050 demand in South Platte Basin (Colorado's South Platte Basin Implementation Plan 2022)



BennT



Ovid Reservoir



Projects Currently Under Development

Colorado plans to satisfy this demand by relying on water now reaching Nebraska, and many projects already are underway.

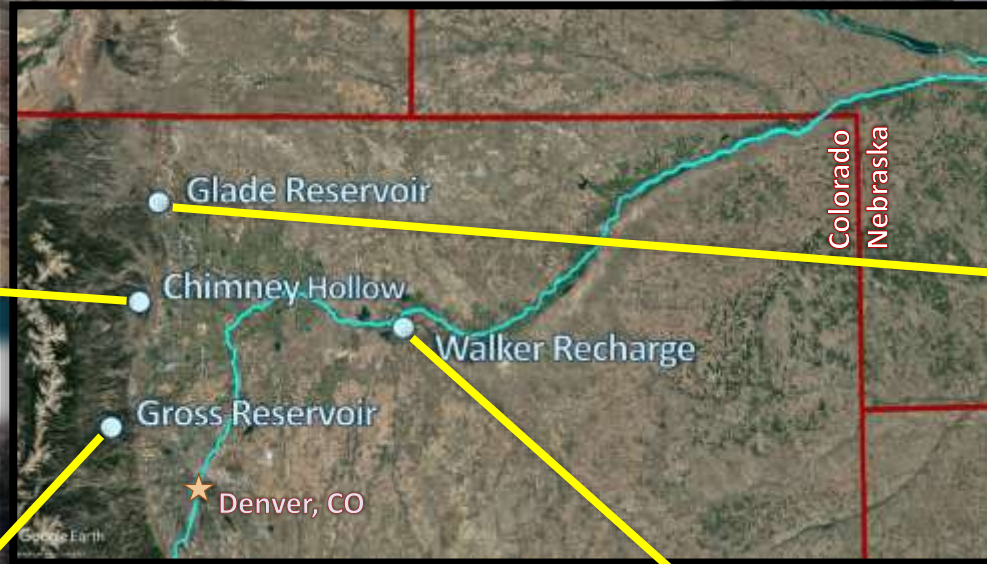
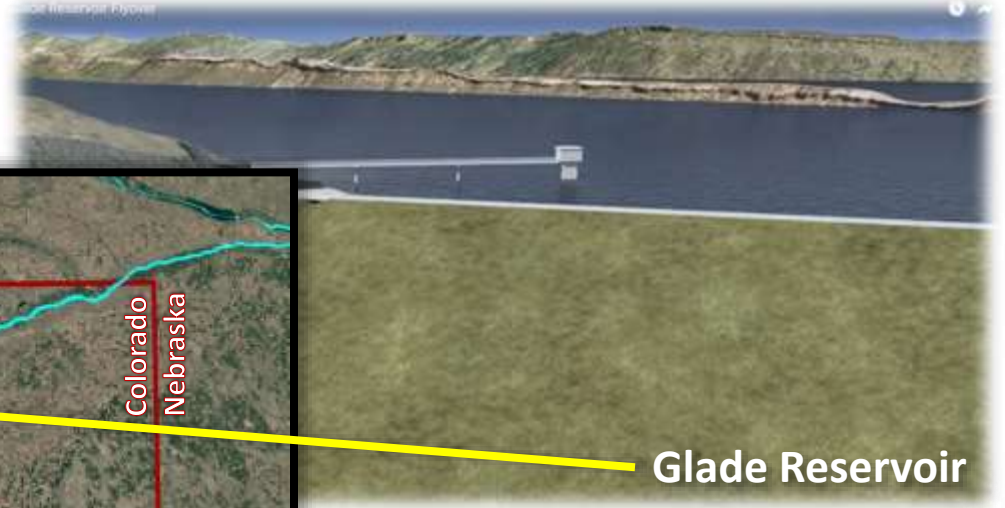


SPROWG



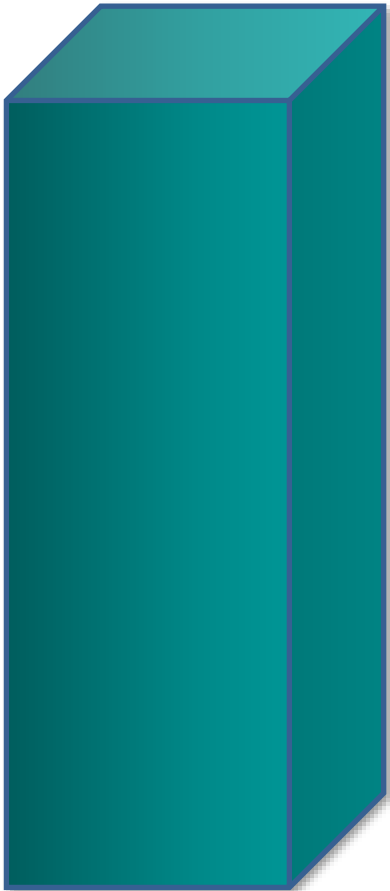
Platte Valley Water Partnership

Projects Currently Under Construction

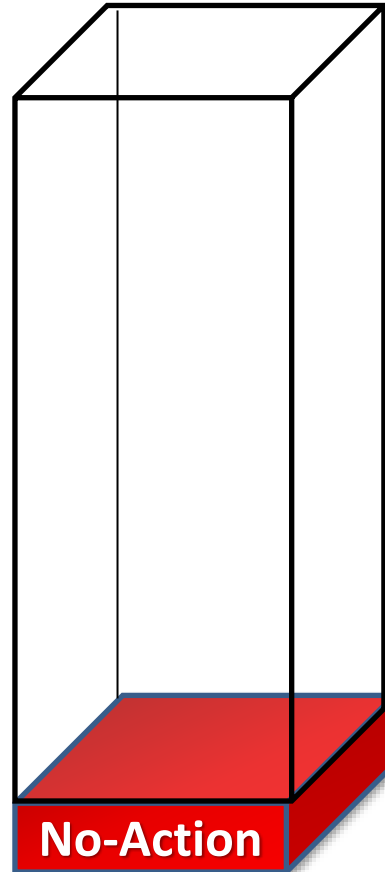


NO ACTION: Stateline Flows

Current

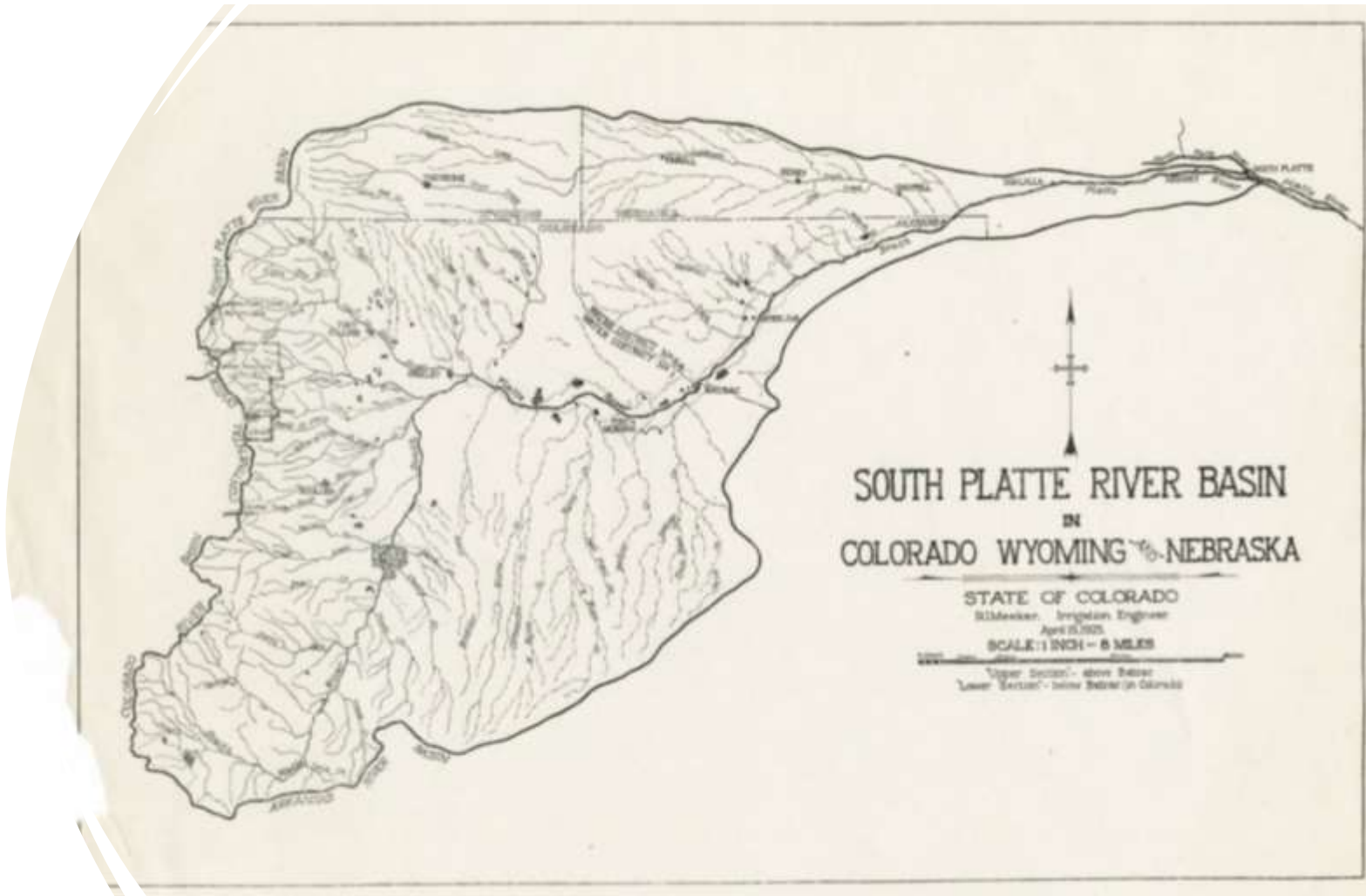


Future

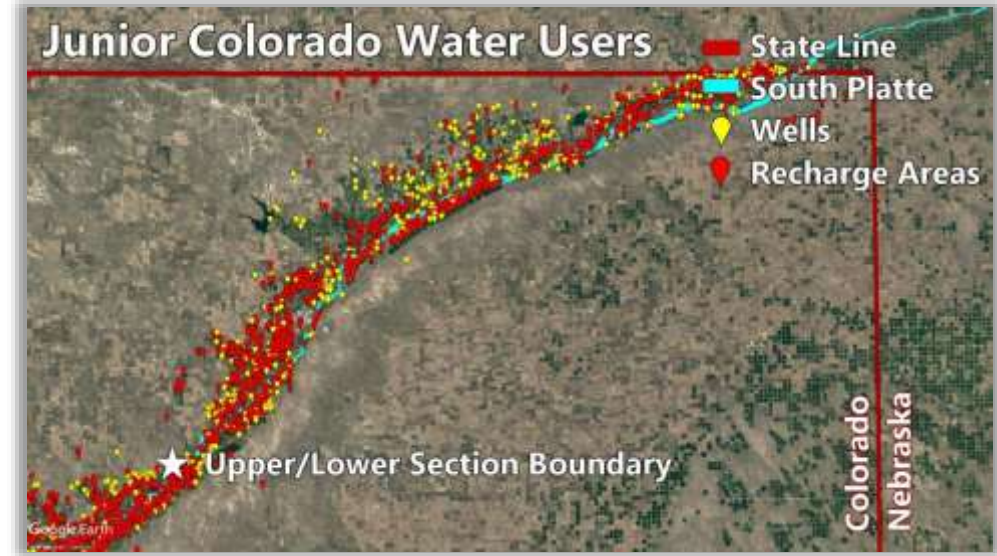


Without the Canal, Colorado plans to increase its consumptive uses such that the only water crossing the state line is the minimum flow of 120 cfs from April 1 – October 15 (roughly 47 kaf).

Foreseeable Future WITH the Canal



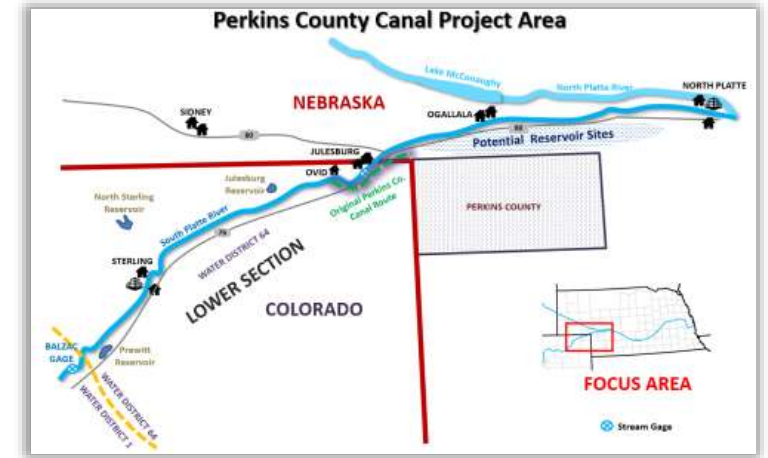
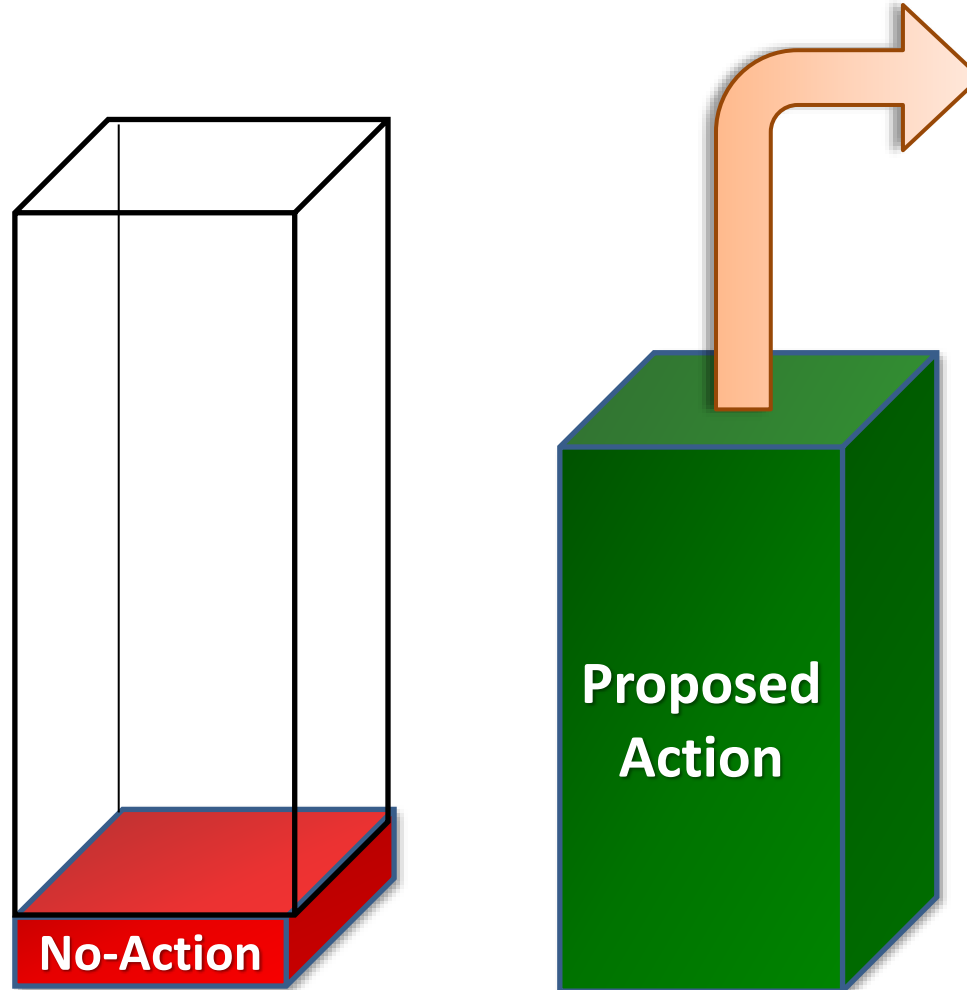
When the canal is operational, Nebraska can call out junior uses in the Lower Section.



Nebraska's full exercise of its rights under the Compact and Nebraska's laws will preserve current flows because Nebraska state laws and the Nebraska New Depletions Plan require post-1997 uses to be mitigated.

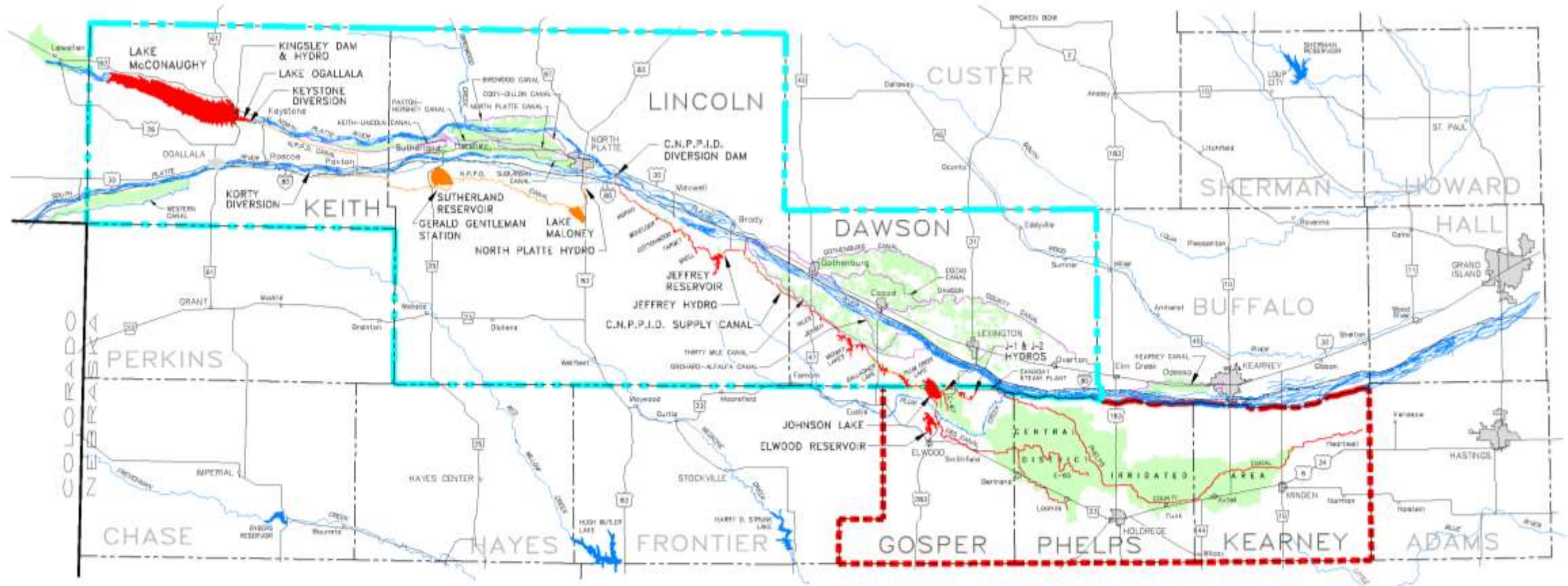
WITH Project: Stateline Flows

Future



With the Canal, state line flows will be protected. Return flows originally intended for Nebraska would no longer be consumptively used by Colorado and instead would flow into Nebraska.

Nebraska is not constructing the Canal for the purpose of expanding its water consumption – the intent is to firm existing supplies.



0 10 MI
= SURFACE IRRIGATION



Perkins County Canal Project

Next Steps:

- Permitting
 - Pre-consultation with USACE/USFWS
 - Continue conversations with Colorado
 - Continue discussions with PRRIP
 - Discuss with NGPC
- Design
 - Continue to advance design concepts (building from USBR evaluation)
 - Identify potential storage needs
 - Evaluate approaches to optimize water user outcomes
- Land Acquisition
 - Landowner meetings for potential diversion sites and canal route in Colorado
 - Begin executing land options for canal route

NEBRASKA



Good Life. Great Water.

DEPT. OF NATURAL RESOURCES

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Lincoln, NE 68521-6729

402-471-2363

Meeting Close

- Split Kitty Drawing
- PDHs available from the Omaha Post Website
 - ▶ <https://www.same.org/omaha/resources/>