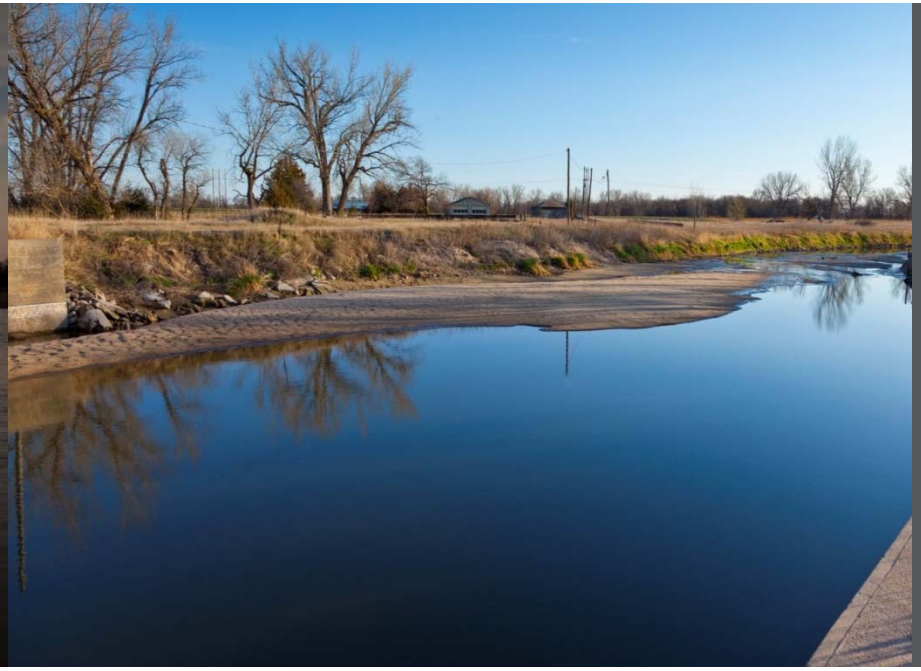
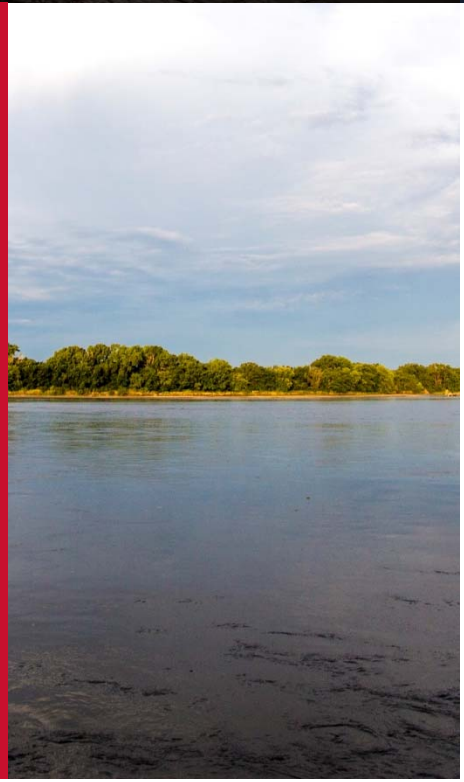
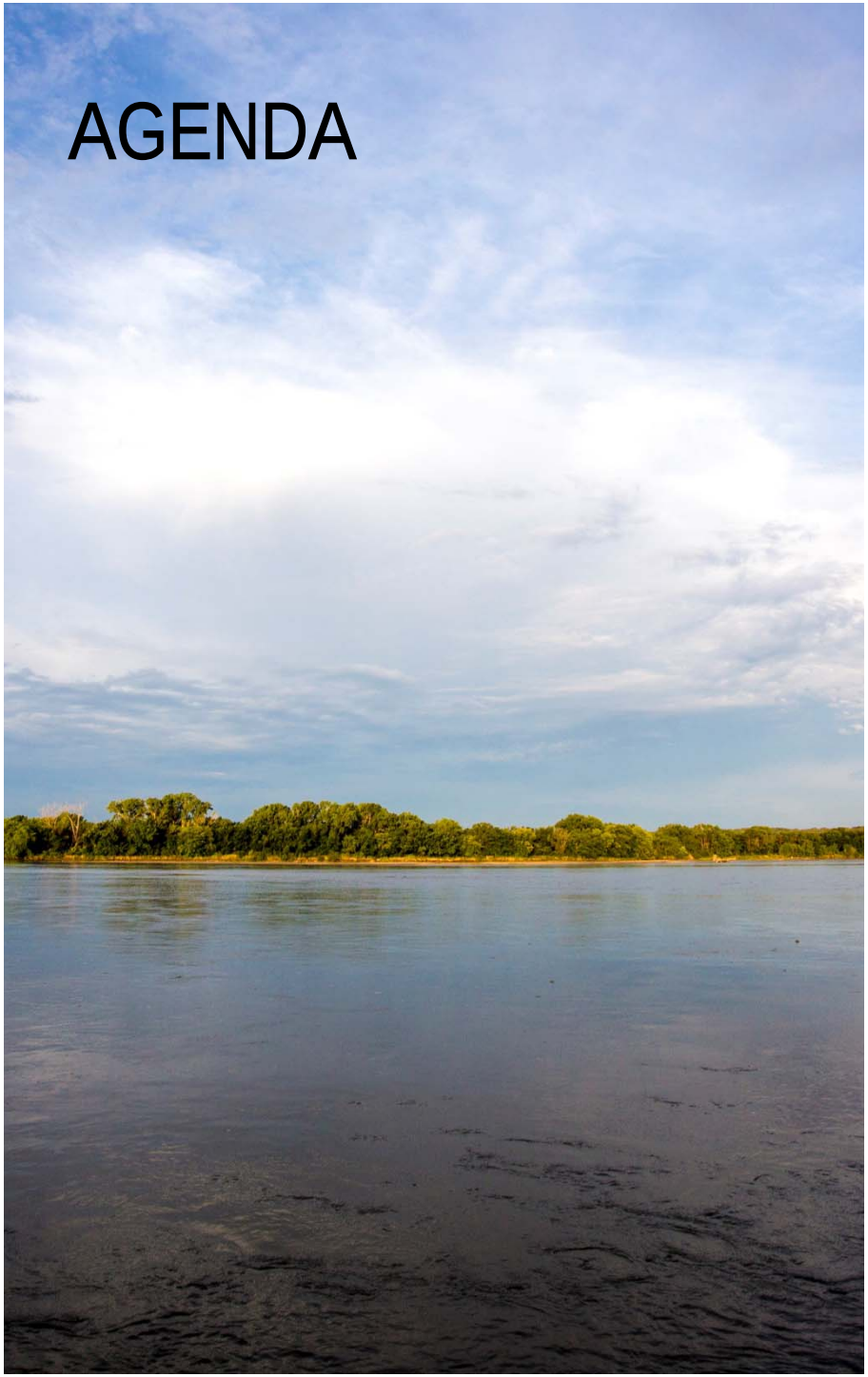




Lower Platte Basin-wide Management Plan - Water Banking Workshop #3

November 17, 2015



AGENDA

01 Subbasin Workshop Meetings Recap

02 Inter-Subbasin/Inter-NRD Examples for Water Banking

03 Basin-wide Accounting

04 Water Management Plan Elements and Next Steps

05 Public Comment/Other Discussion

01 Subbasin Workshop Meetings Recap

Highlights – Loup Subbasin Workshop

Upper Loup NRD

- Water supply not issue in District
- Very little infrastructure; Possibility to use ditching for storage/recharge.
- Additional irrigated land could still be developed in select areas.
- Project very little future development (ag or industry)
- Cost/staffing of running water bank, marketing, implementation would be an issue
- Dam at to capture water only feasible with funding/coordination with LLNRD as benefit would be downstream.
- Ok with Plan making a recommendation on limiting development but want local control of any banking activities.

Lower Loup NRD

- Already owns and operates water bank
- Extensive canal network and groundwater well development in District
- Existing reservoirs have established operational policies (including with Loup Power) that would need to be factored into larger-scale water transfers.
- Potential new projects for water storage and recharge (including Lillian Creek).
- Local control of water bank with financing partners for future projects.
- The issue of using or not using Loup Hydro water for consumptive use would require negotiations with Loup Power and will require further investigation by LLNRD.

Highlights – Elkhorn Subbasin Workshop

Upper Elkhorn NRD

- Under current NRD Rules and Regulations, Water supply not issue in District
- Very little infrastructure
- Limited farming potential. No new development for 2013, 2014, or 2015.
- Project very little future development (ag or industry)
- See water banks as way to facilitate transfers on limited basis.
- New dam at Oakdale to capture excess would benefit downstream and would only be feasible with financial assistance/agreements with downstream beneficiaries.
- Ok with Plan setting recommendation for limiting development for next 5-yrs.

Lower Elkhorn NRD

- Potential for significant irrigation development.
- Potential reservoir, recharge, and detention sites identified that can be used in a water bank.
- Interest by NRD is looking into small-scale projects such as reservoir recharge and valving on tile drains for retiming benefits.
- Likely use excess supply as deposit in water bank.
- Focus on Plan as accounting tool.

Highlights – Lower Platte Subbasin Workshop

Lower Platte North NRD

- Currently allow transfers on acre-to-acre basis; interested in using water bank to allow AF based transfers.
- Some discussions on water banking in current IMP development.
- Future growth likely industrial and population growth.
- water bank could be used to address quantity issues in Special-Quantity-Areas.
- Physical options include increasing existing dam capacity or adding a new dam.
- Facility such as Skull Creek could be used to store water for transfer downstream.
- Potential recharge in Todd Valley or Platte/Colfax areas.
- ILA would be needed between multiple NRDs within a single accounting subbasin in fair division of “excess supply”.
- Envision the Plan being a recommendation and NRD will adopt in whole or part into IMP.
- Ok with Plan recommending a cap for first 5-yrs to protect water supply.

Highlights – Lower Platte Subbasin Workshop

Papio-Missouri River NRD

- With limited local opportunities to develop; NRD sees working with upstream NRDs critical to securing water.
- Paper water/accounting important to long-term sustainability; however, the ability to manage for drought with storage/augmentation projects is needed.
- Downstream NRDs need some sort of assurance the upstream NRDs will follow recommendation/guidelines.
- Some sort of understanding/reliability on Loup Hydro water is a concern to be addressed.
- Need assurances that water banking will be recognized through statute.
- Ok with Plan recommending a cap for first 5-yrs to protect water supply.

Lower Platte South NRD

- Concern if excess supply is not utilized will be forfeited – potential for a water bank to be used to protect undeveloped supplies.
- Limited existing infrastructure other than smaller dams (mostly for flood control and recreation).
- Possible ILA in future with Loup Subbasin to transfer water downstream.
- Potential to partner with Loup Power to facilitate certain upstream storage options.
- Dry-year leases and instream flow rights potential tools.
- Ok with Plan recommending a cap for first 5-yrs to protect water supply.

Recap of Water Banking Workshops

NRDs in Agreement

- Avoid Fully-Appropriated Status
- Basin accounting methodology same for all NRDs in Coalition.
- Need assurances that undeveloped water that is "banked" will be recognized by statute – protected.
- Any projects constructed for benefit of downstream users would require ILA and funding assistance/compensation.
- Avoid "one-size-fits-all" approach with any banking options.

Differences

- Different places with regard to implementing transfers.
- Varying degrees of water quantity issues across basin.
- Differing opinions/uncertainty with regard to development of Loup Hydro water for consumptive use or as a supply to downstream users.
- Some hesitation on whether or not Plan should recommend a 5-yr "cap" on development.

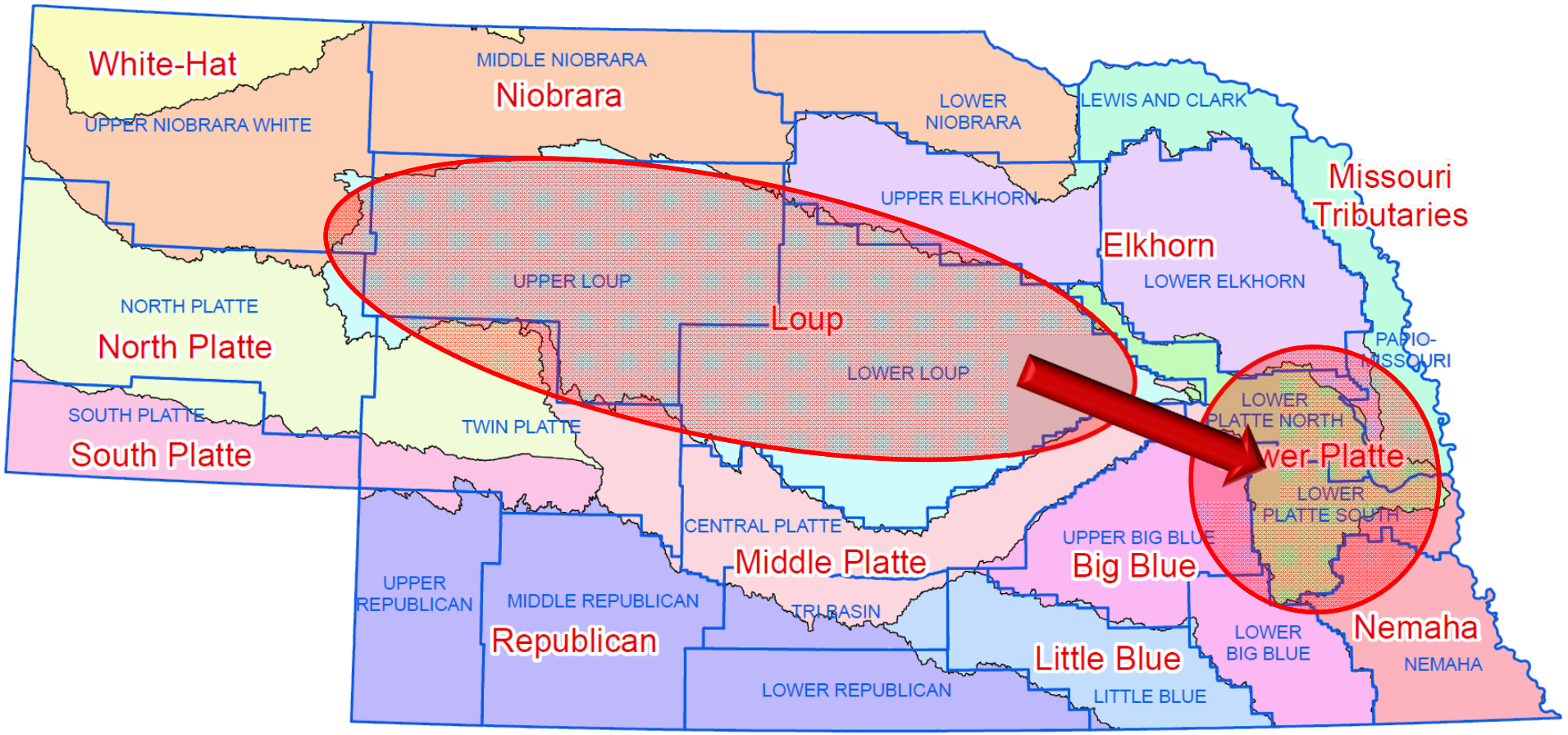
02 Inter-Subbasin/Inter-NRD Examples for Water Banking

Water Banking Examples

- Three types of inter-NRD water bank examples
  - Storage/retiming project in Loup basin
  - Storage/retiming project in Lower Platte
  - Example transfer in Elkhorn River basin

Loup/Lower Platte Joint Project

Water Banking Example
Loup and Platte Agreement



New or Modified Storage

Water Banking Example

Loup and Platte Agreement

Storage

CONSERVATION · POWER · PROGRESS
LOUP POWER DISTRICT

Demand

Passive

Active

Delayed

Canal Rechage

Reservoir Seepage

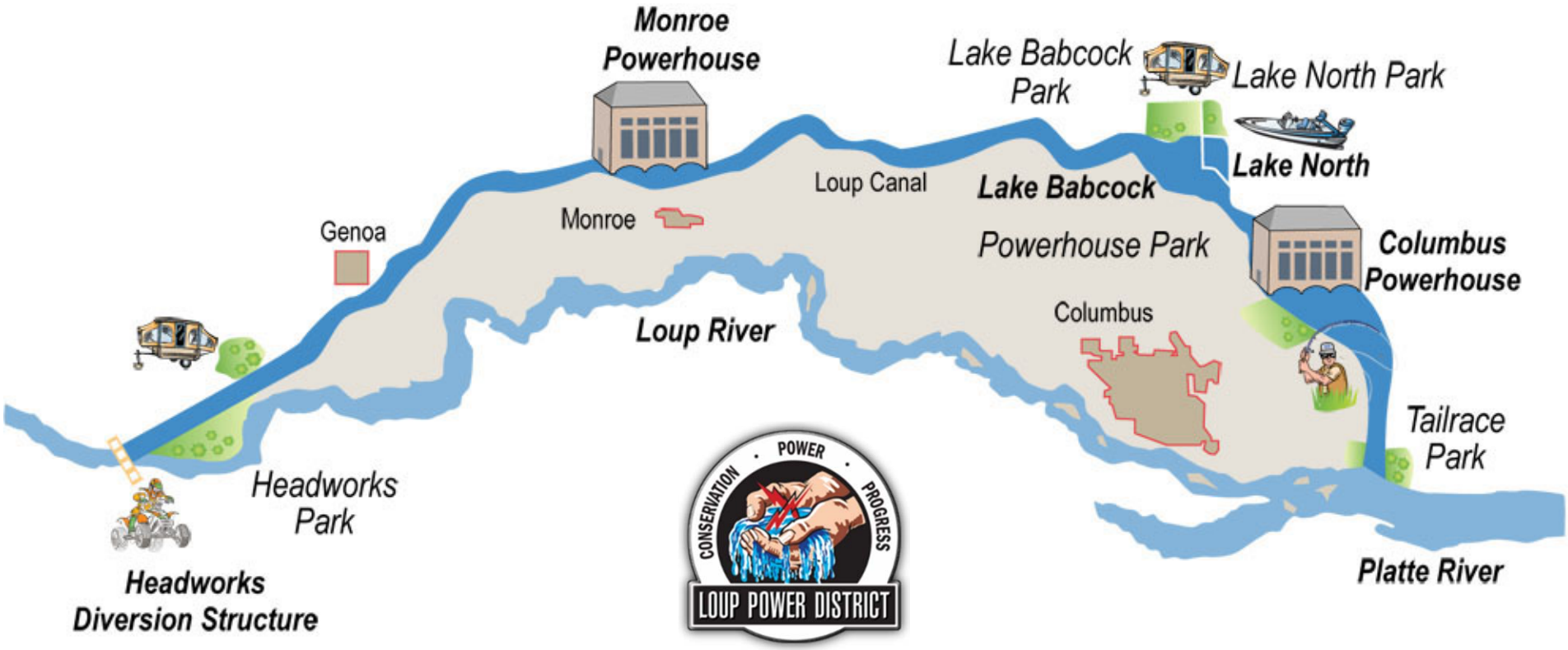
Reservoir Releases

Augmentation Pumping

On Demand

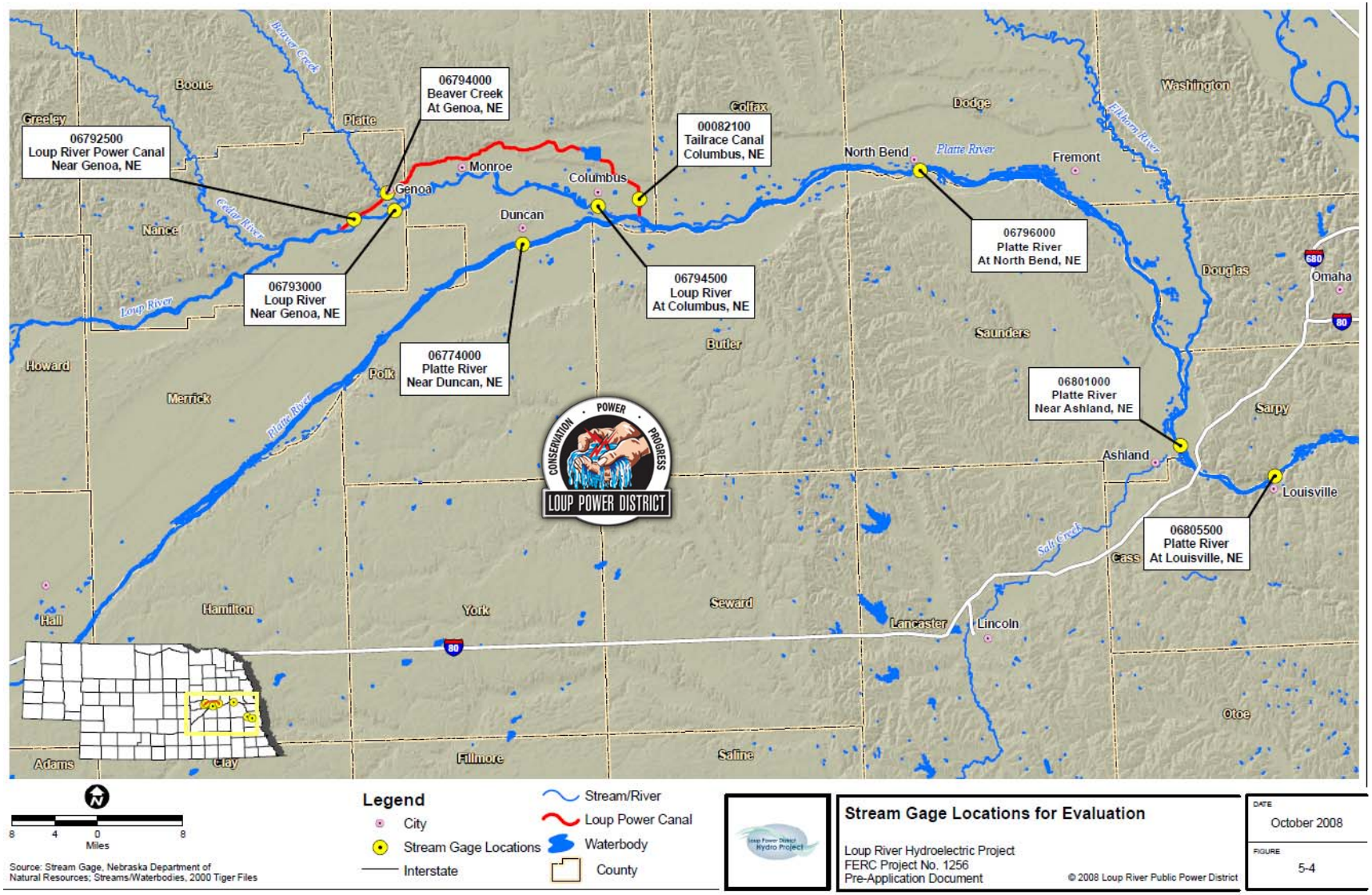
Water Banking Example

Loup and Platte Agreement



Water Banking Example

Loup and Platte Agreement

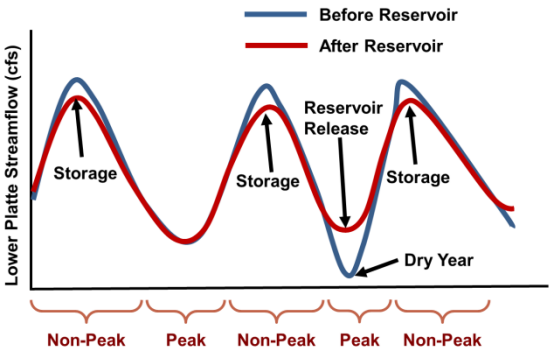


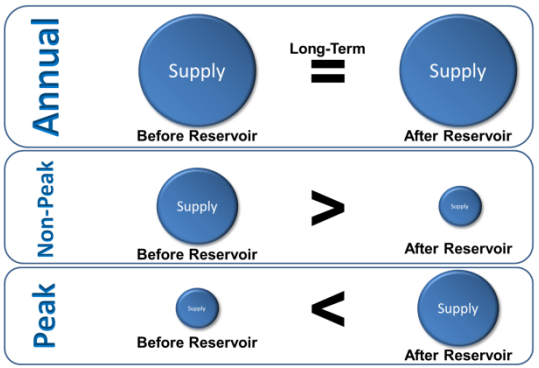
Water Banking Example

Loup and Platte Agreement

Storage

Demand

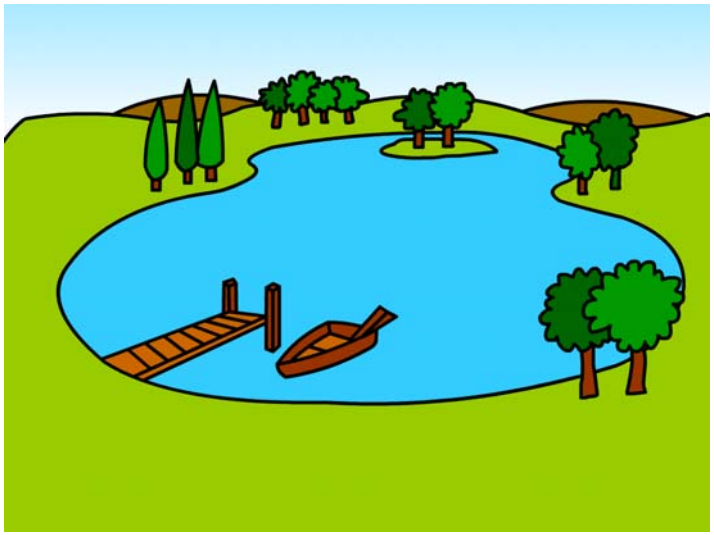




Gage

Water Banking Example

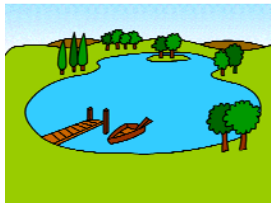
Loup and Platte Agreement



Existing Storage

New Storage

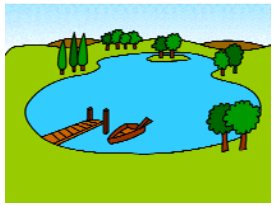
Water Banking Example
Loup and Platte Agreement



Existing Storage

- **Eliminates, or reduces, need for new construction**
- **Reduces permitting requirements and environmental review obligations**
- **Reduces ramp-up time for bringing project online**
- **Likely need to show that unappropriated water is available (easier for smaller quantities) – Loup Power issues**
- **Limits options to existing geographic sites**

Water Banking Example
Loup and Platte Agreement



Existing Storage – Potential Requirements

Storage right modifications for additional storage allocation or reallocation

- **Likely require a new permit to impound water (storage right)**
- **Very likely require a new permit for new use (storage use right)**
- **Potential consultation with Game and Parks Commission (Biological Opinion)**
- **Potential federal nexus with ESA (pallid sturgeon)**

Water Banking Example
Loup and Platte Agreement

New Storage

- New construction required
- New permitting and environmental review requirements
- Additional ramp-up time
- Must show that unappropriated water is available (easier for smaller structures) – Loup Power issues
- Flexibility to build at best site available

Water Banking Example
Loup and Platte Agreement

New Storage – Potential Requirements

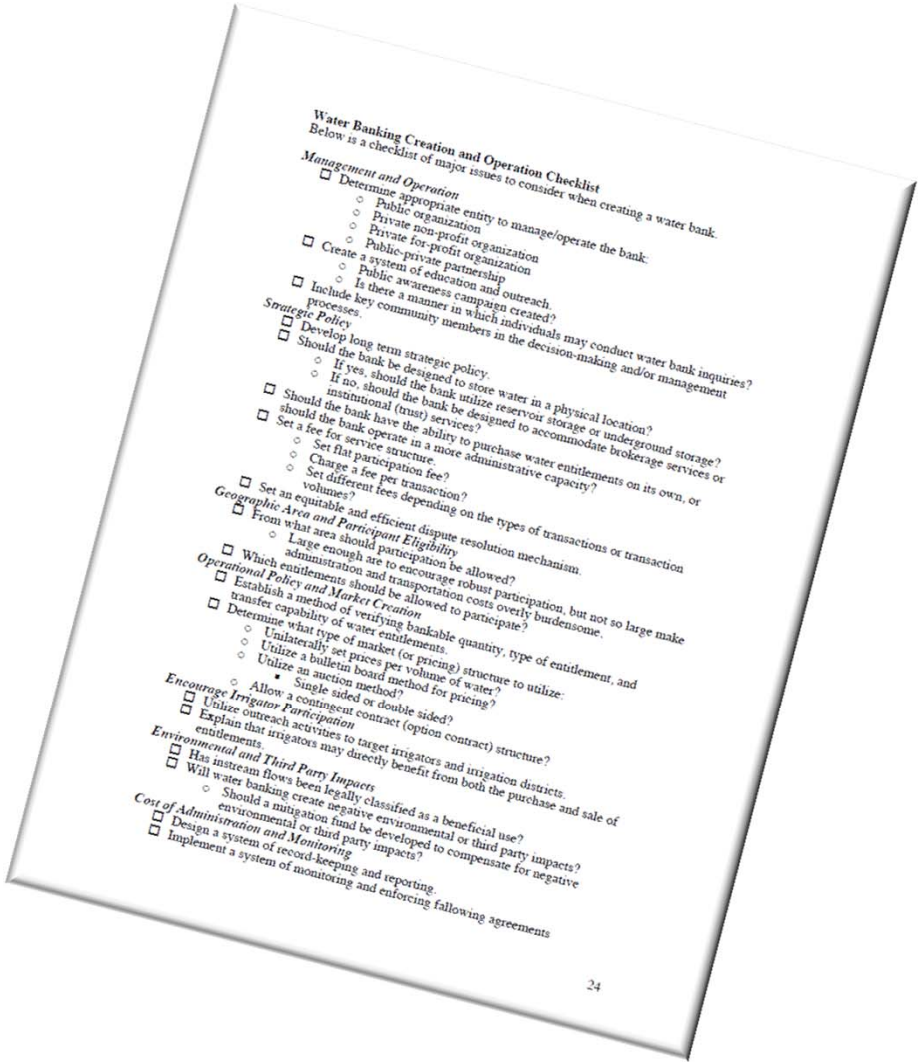
- **Would require new permit to impound water (storage right)**
- **Would require new permit to use storage water (storage use right)**
- **Consultation with Game and Parks Commission (Biological Opinion)**
- **Potential federal nexus with ESA (environmental reviews)**
- **Other requirements and reviews? Historical sites? Eminent domain? Public education and outreach?**

Water Banking Example
Loup and Platte Agreement

	Existing Storage	New Storage
Construction Required?	Probably Not	Yes
Land Acquisition?	Probably Not	Yes
Environmental Review?	Possibly	Probably
New storage and storage use applications?	Probably	Yes
Prove unappropriated water available?	Probably	Yes
Ability to locate at optimal location	No	Yes
Loup Power considerations?	Yes	Yes

Water Banking Example
Loup and Platte Agreement

Water Banking Checklist



Water Banking Creation and Operation Checklist

Below is a checklist of major issues to consider when creating a water bank.

Management and Operation

- ☐ Determine appropriate entity to manage/operate the bank.
  - ○ Public organization
  - ○ Private non-profit organization
  - ○ Private for-profit organization
  - ○ Public-private partnership
- ☐ Create a system of education and outreach.
  - ○ Public awareness campaign created?
  - ○ Is there a manner in which individuals may conduct water bank inquiries?
- ☐ Include key community members in the decision-making and/or management processes.

Strategic Policy

- ☐ Develop long term strategic policy.
- ☐ Should the bank be designed to store water in a physical location?
  - ○ If yes, should the bank utilize reservoir storage or underground storage?
  - ○ If no, should the bank be designed to accommodate brokerage services or institutional (trust) services?
- ☐ Should the bank have the ability to purchase water entitlements on its own, or should the bank operate in a more administrative capacity?
- ☐ Set a fee for service structure.
  - ○ Set flat participation fee?
  - ○ Charge a fee per transaction?
  - ○ Set different fees depending on the types of transactions or transaction volumes?
- ☐ Set an equitable and efficient dispute resolution mechanism.

Geographic Area and Participant Eligibility

- ☐ From what area should participation be allowed?
  - ○ Large enough are to encourage robust participation, but not so large make administration and transportation costs overly burdensome.
- ☐ Which entitlements should be allowed to participate?

Operational Policy and Market Creation

- ☐ Establish a method of verifying bankable quantity, type of entitlement, and transfer capability of water entitlements.
- ☐ Determine what type of market (or pricing) structure to utilize:
  - ○ Unilaterally set prices per volume of water?
  - ○ Utilize a bulletin board method for pricing?
  - ○ Utilize an auction method?
    - Single sided or double sided?
  - ○ Allow a contingent contract (option contract) structure?

Encourage Irrigator Participation

- ☐ Utilize outreach activities to target irrigators and irrigation districts.
- ☐ Explain that irrigators may directly benefit from both the purchase and sale of entitlements.

Environmental and Third Party Impacts

- ☐ Has instream flows been legally classified as a beneficial use?
- ☐ Will water banking create negative environmental or third party impacts?
  - ○ Should a mitigation fund be developed to compensate for negative environmental or third party impacts?

Cost of Administration and Monitoring

- ☐ Design a system of record-keeping and reporting.
- ☐ Implement a system of monitoring and enforcing following agreements

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Water Banking Example
Loup and Platte Agreement

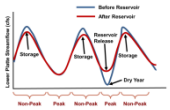
- Project Need
- Management and Operation
- Strategic Policy
- Geographic Area and Participant Eligibility
- Operational Policy and Market Creation
- Encourage Irrigator Participation
- Environmental and Third Party Impacts
- Cost of Administration and Monitoring

Water Banking Example

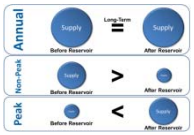
Loup and Platte Agreement

Project Need

- Provide supplemental flow at times of need downstream in Lower Platte



- Prevent fully appropriated conditions in the future (retiming of supplies)



- Use as tool for Platte Program (PRRIP) to meet target flows downstream?

Water Banking Example
Loup and Platte Agreement

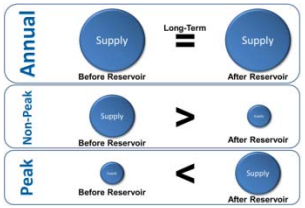
Management and Operation

- Owned by NRDs
- Interlocal agreement may be required between NRDs and/or between NRDs and municipal utilities

Water Banking Example
Loup and Platte Agreement

Strategic Policy

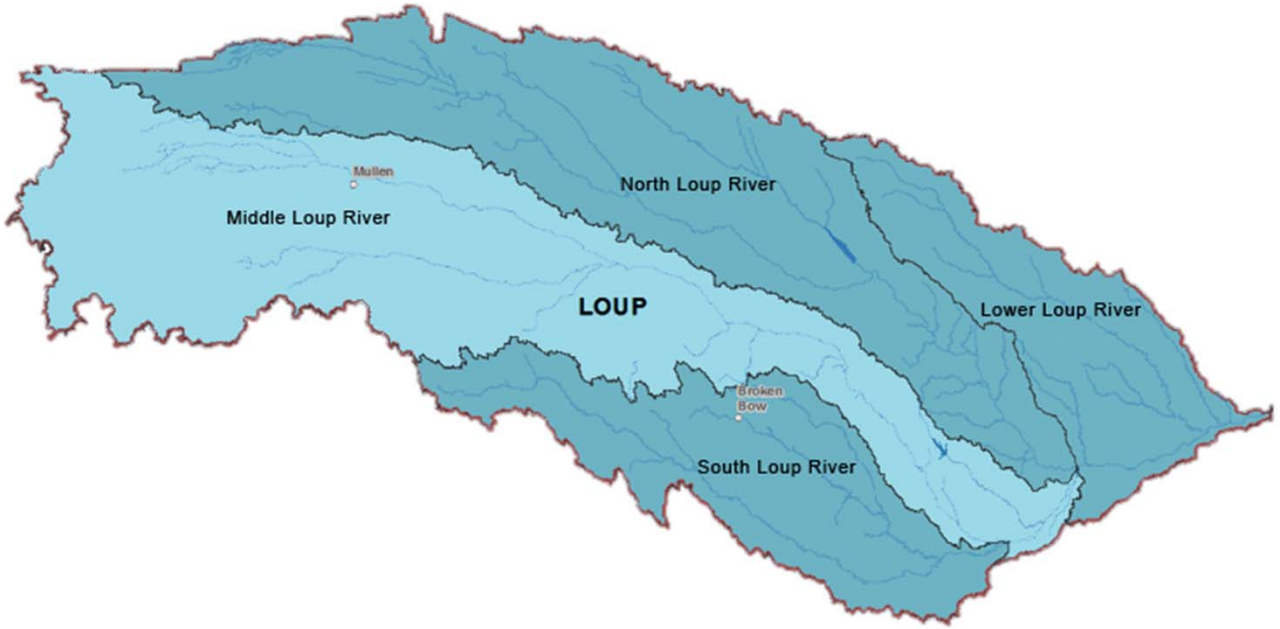
- New or modified storage would represent PHYSICAL storage of water
- Fee structure would require negotiations between NRDs and municipal utilities
- NRDs could potentially bank water for their own purposes as well (supply retiming)



Water Banking Example
Loup and Platte Agreement

Geographic Area and Participant Eligibility

- Loup and Lower Platte NRDs
- How far upstream in Loup Basin?



Water Banking Example
Loup and Platte Agreement

Operational Policy and Market Creation

- Verification through stream gaging and loss measurements
- Price negotiated between NRDs and utilities?
  - Renegotiated annually?
  - Use option contracts to manage hydrologic variability?

Water Banking Example
Loup and Platte Agreement

Encourage Irrigator Participation

- Allow a portion of new reservoir supplies to be used by irrigators?
- If so, issues with Loup Power, development of subordination agreements, and impacts to overall supply and demand (increasing demand)

Water Banking Example
Loup and Platte Agreement

Environmental and Third Party Impacts

- New and modified storage may require NGPC and/or Federal consultation
- As mentioned earlier – Loup Power third party impacts

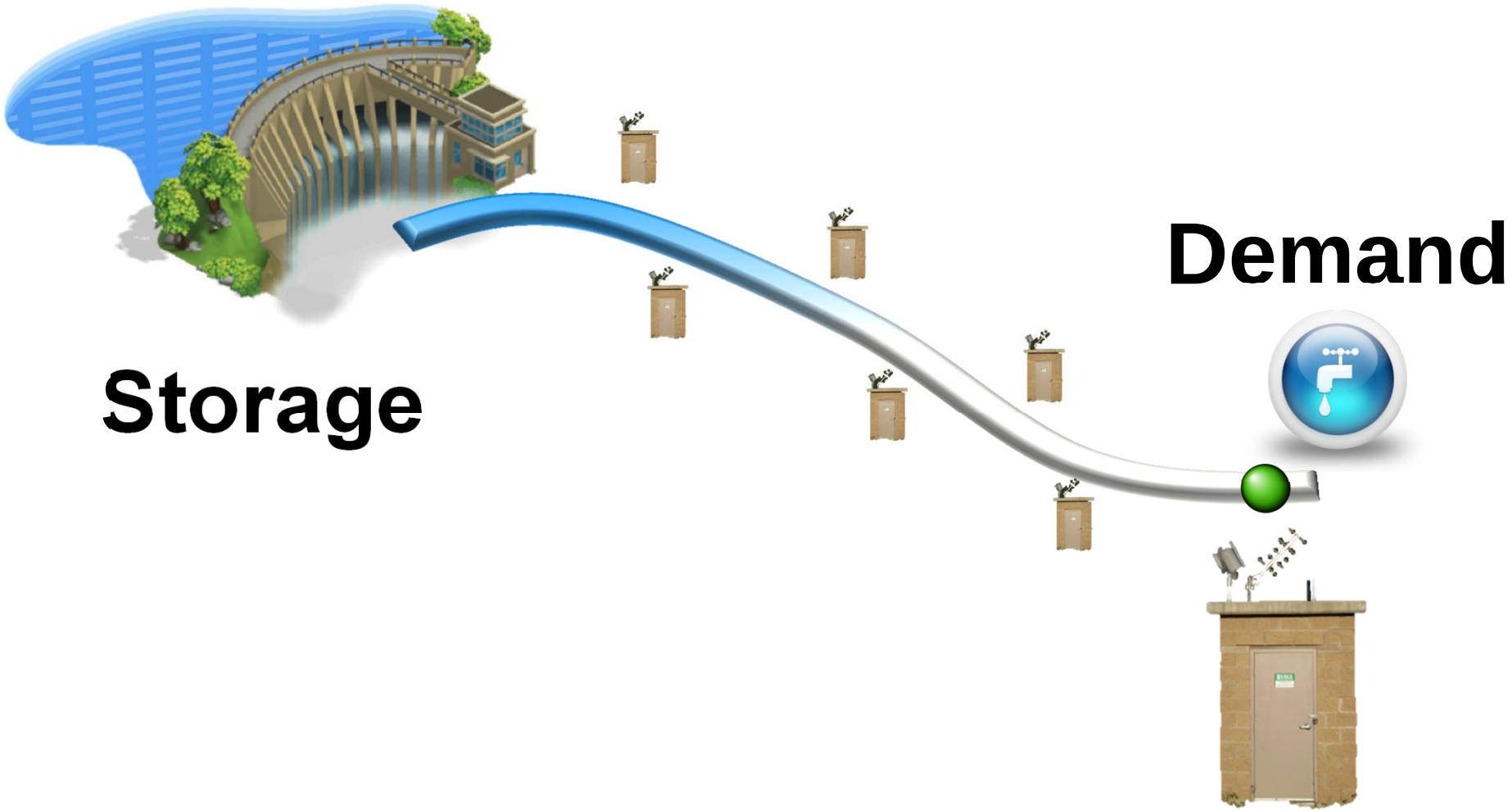
Water Banking Example
Loup and Platte Agreement

Cost of Administration and Monitoring

- Potential partnership with DNR with record keeping
- Gaging stations could be used to ensure correct assessment of delivered water

Water Banking Example

Loup and Platte Agreement



Water Banking Example
Loup and Platte Agreement

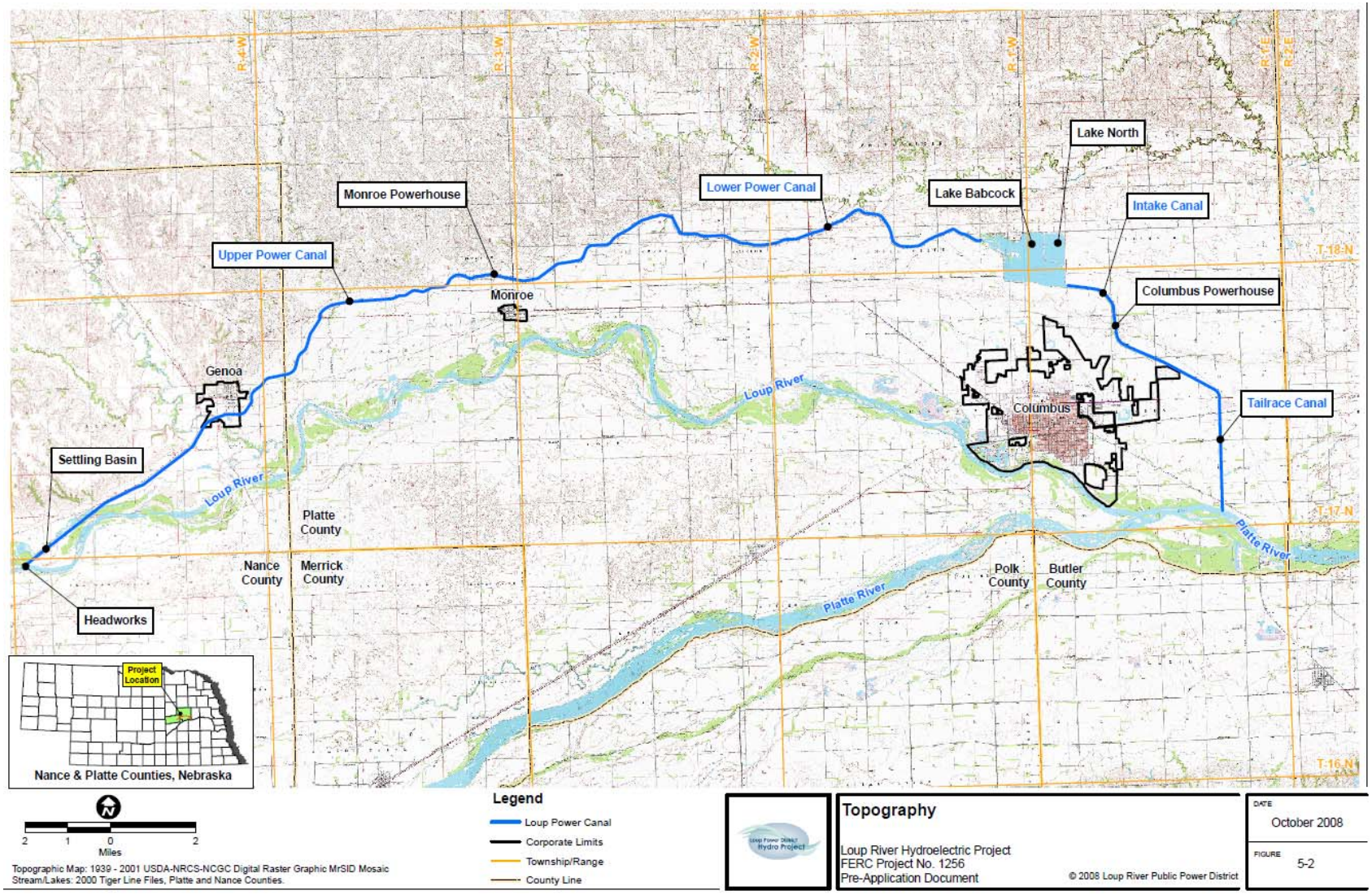
Summary

- New or modified storage could be used to provide timely supplies to a downstream location at a time of need
- Also could be used to retime supplies for overall accounting benefit
- Loup Power considerations
- Environmental reviews
- Gaging and challenges of managing losses

Questions?

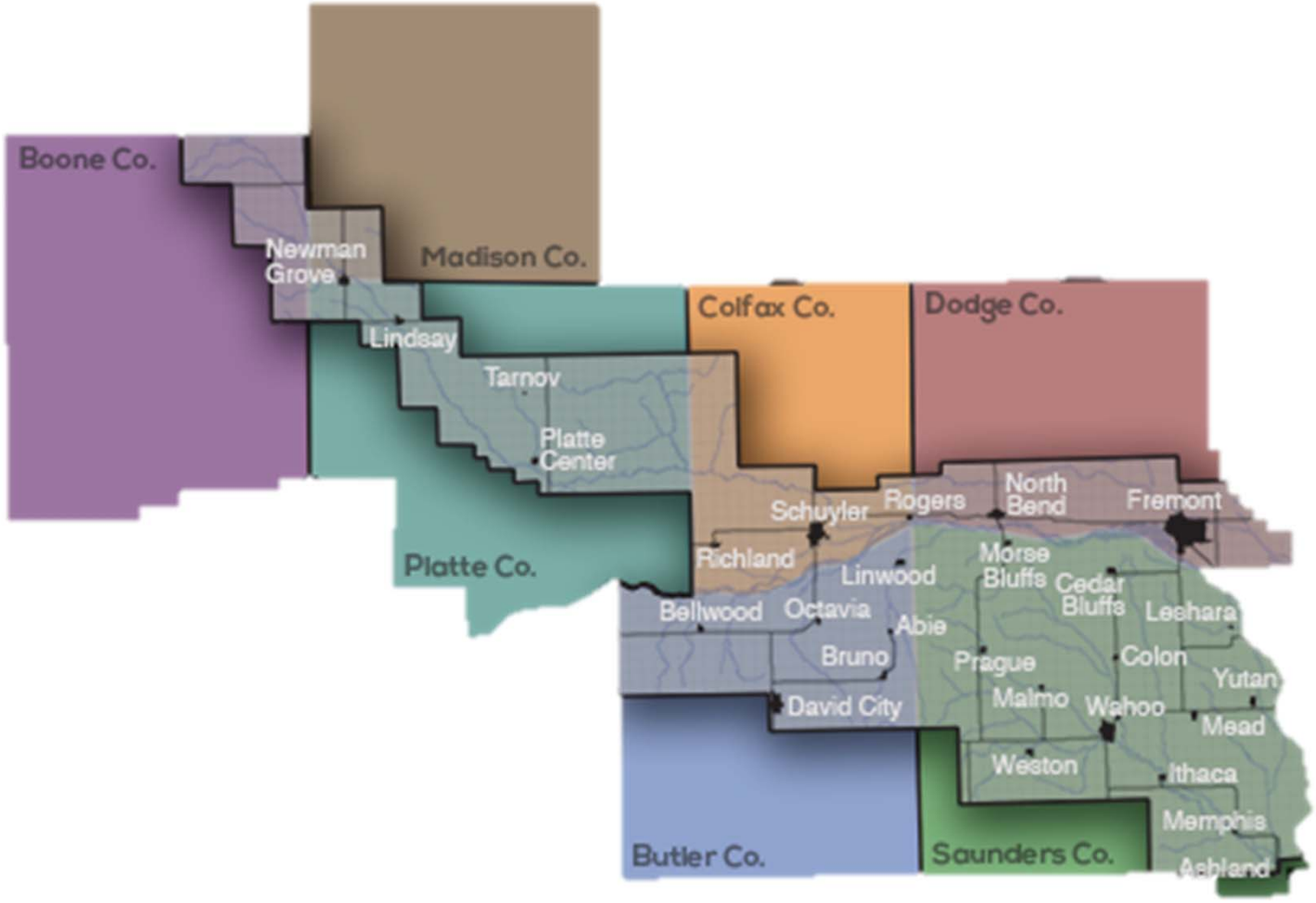
Water Banking Example

Loup and Platte Agreement



Skull Creek Project

Location: Lower Platte North NRD



Water Banking Example

New Reservoir

CITY OF LINCOLN NEBRASKA

Demand

Storage

Passive — **Active**

Delayed

Canal Rechage

Reservoir Seepage

Reservoir Releases

Augmentation Pumping

On Demand

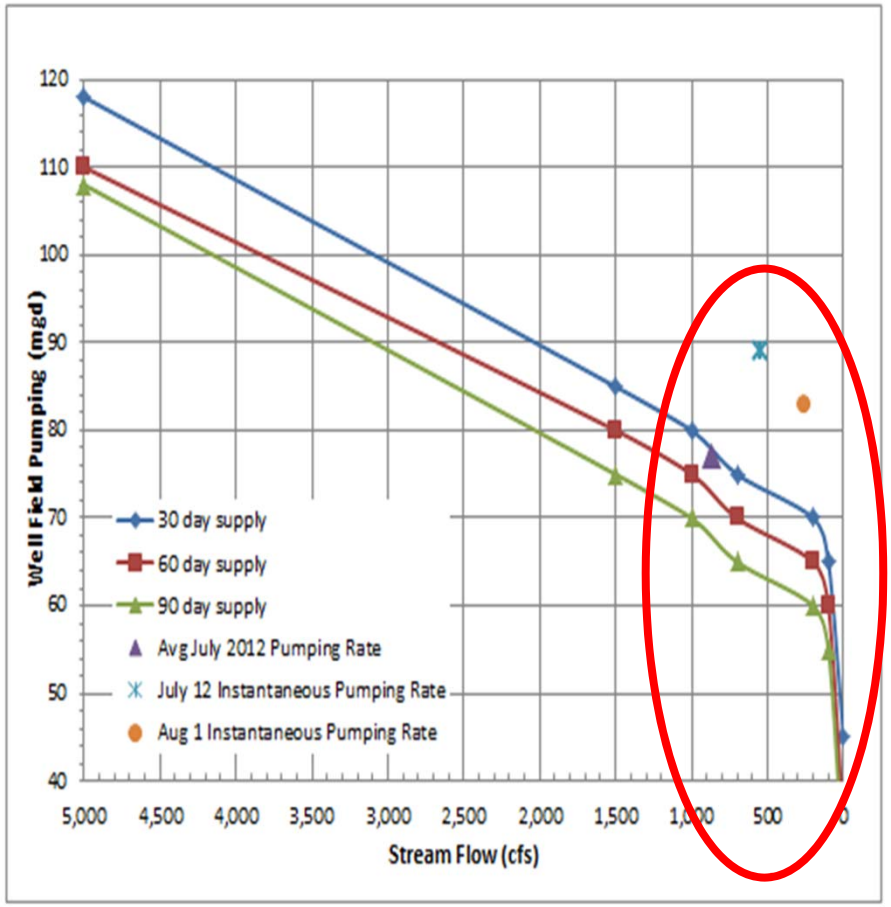
Lincoln Well Field:
Future Demand Projections

Year	Estimated Population	Average Day Well Field Pumpage (MGD)	Average Day Lincoln Usage (MGD)	Maximum Day Well Field Pumpage (MGD)	Maximum Day Lincoln Usage (MGD)	Maximum Hour Lincoln Usage (MGD)
2012	264,618	42.4	38.4	83.3	80	173
2020	291,100	46	43	110	103	185
2025	309,000	49	46	117	110	197
2030	328,000	52	49	124	116	209
2040	371,700	59	55	141	132	237
2050	416,400	66	62	158	148	265
2060	461,700	73	68	175	164	294

SHEILA STORY/Lincoln Journal Star

Source: Lincoln Facilities Master Plan, 2014

Model-Predicted Well Field Capacity and 2012 Pumping Conditions



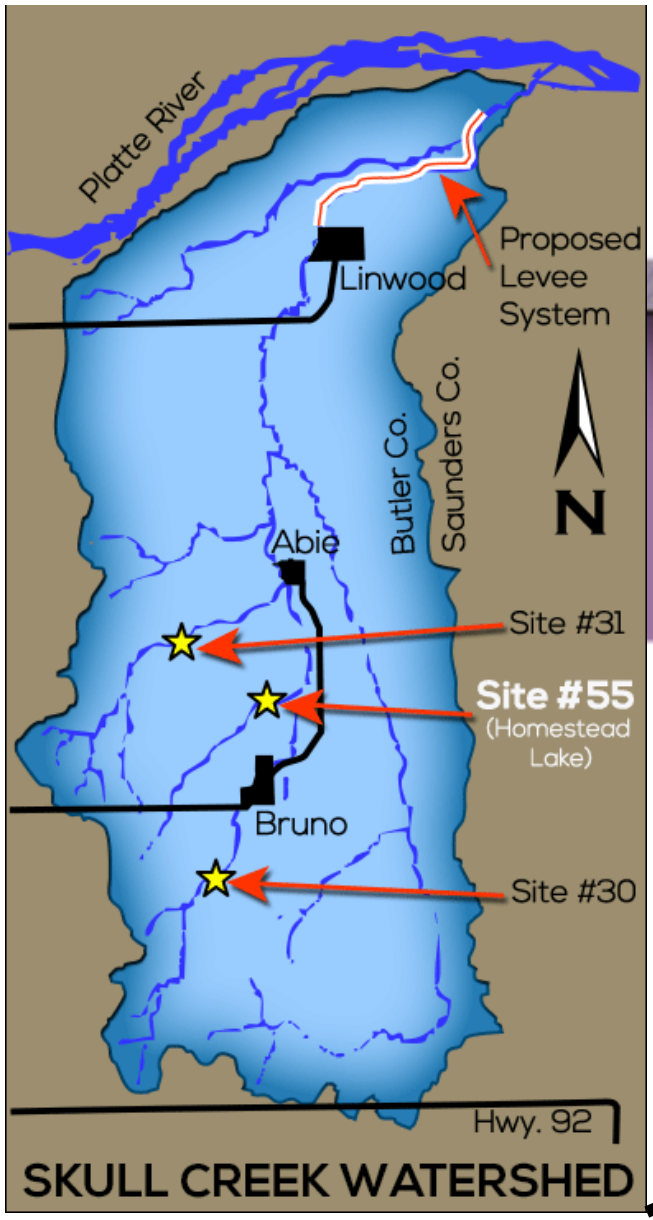
Percent flow at Louisville vs. Number of days less than 500 cfs or 1,000 cfs

Percent Flow @ LV	Number of Days < 500 cfs	Number of Days < 1000 cfs
100	15	105
90	22	134
80	36	170
70	53	250
60	68	392
50	105	619
40	170	964
30	392	1580
20	964	3270

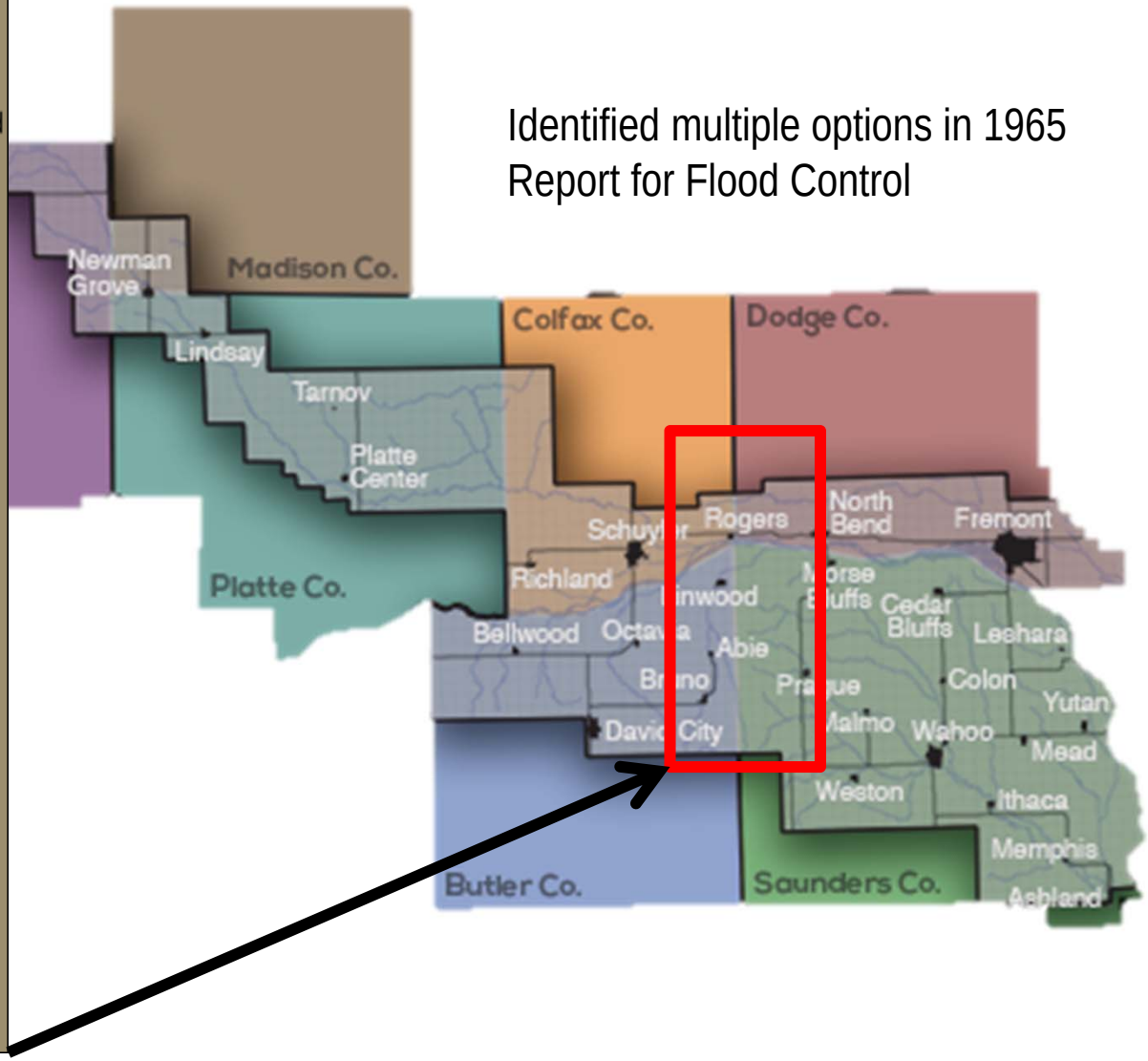
POR – 1/1/1988 to 12/10/2014

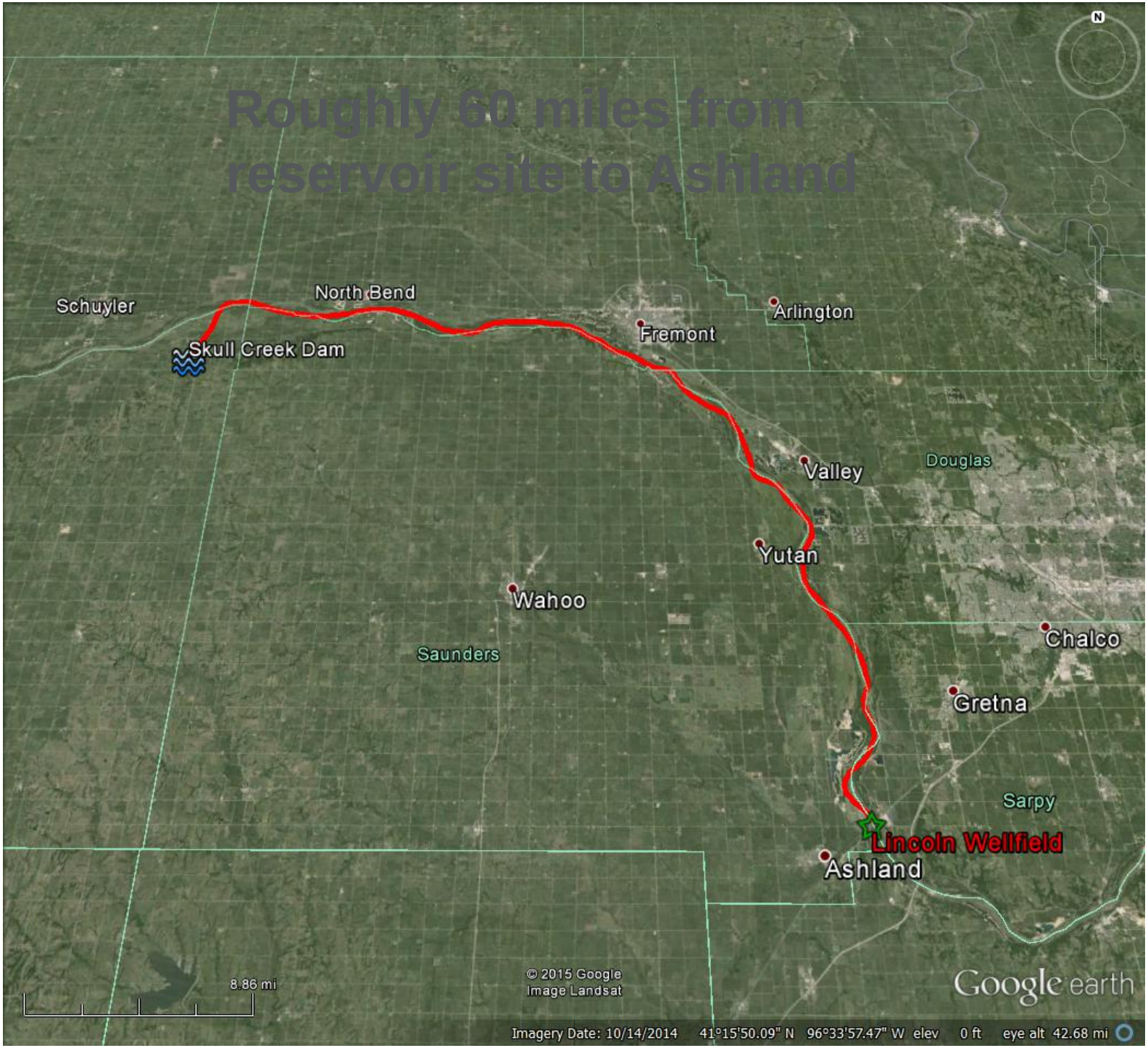
Skull Creek Reservoir

New Reservoir



Identified multiple options in 1965 Report for Flood Control




Roughly 60 miles from reservoir site to Ashland
Schuyler
North Bend
Skull Creek Dam
Fremont
Arlington
Valley
Douglas
Yutan
Wahoo
Saunders
Chalco
Gretna
Sarpy
Lincoln Wellfield
Ashland
8.86 mi
© 2015 Google
Image Landsat
Google earth
Imagery Date: 10/14/2014 41°15'50.09" N 96°33'57.47" W elev 0 ft eye alt 42.68 mi

Skull Creek Reservoir
“One Big Reservoir” Option

- Estimated Seepage Rate: 9,700 AF per year
- Estimated Storage: 2,000 AF per year
- Estimated Water Delivery Potential: 140 CFS for 7 days
- Permanent Pool: 800 acres

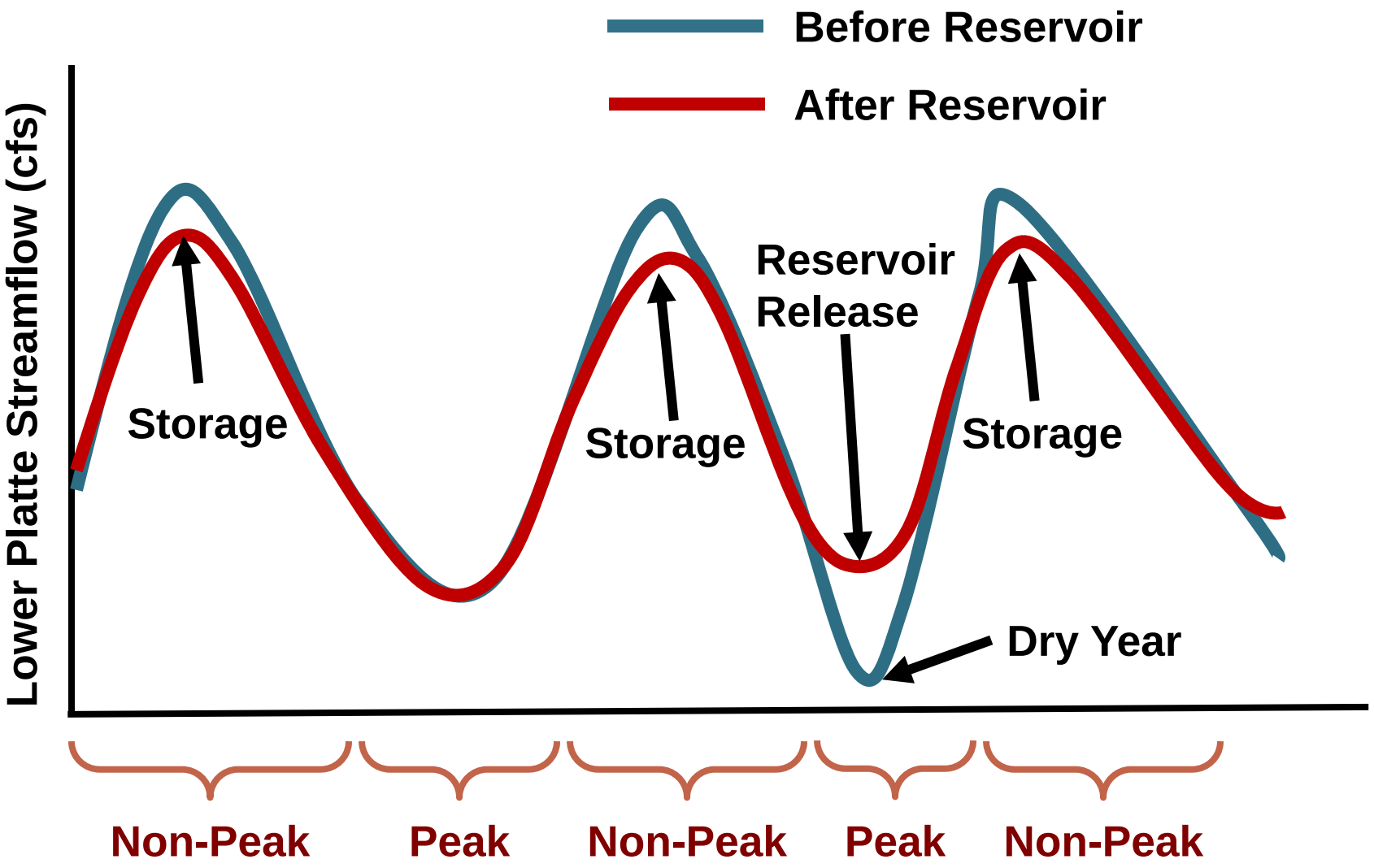
Lake Wanahoo = approximately 662 acres

New Reservoir and Operations

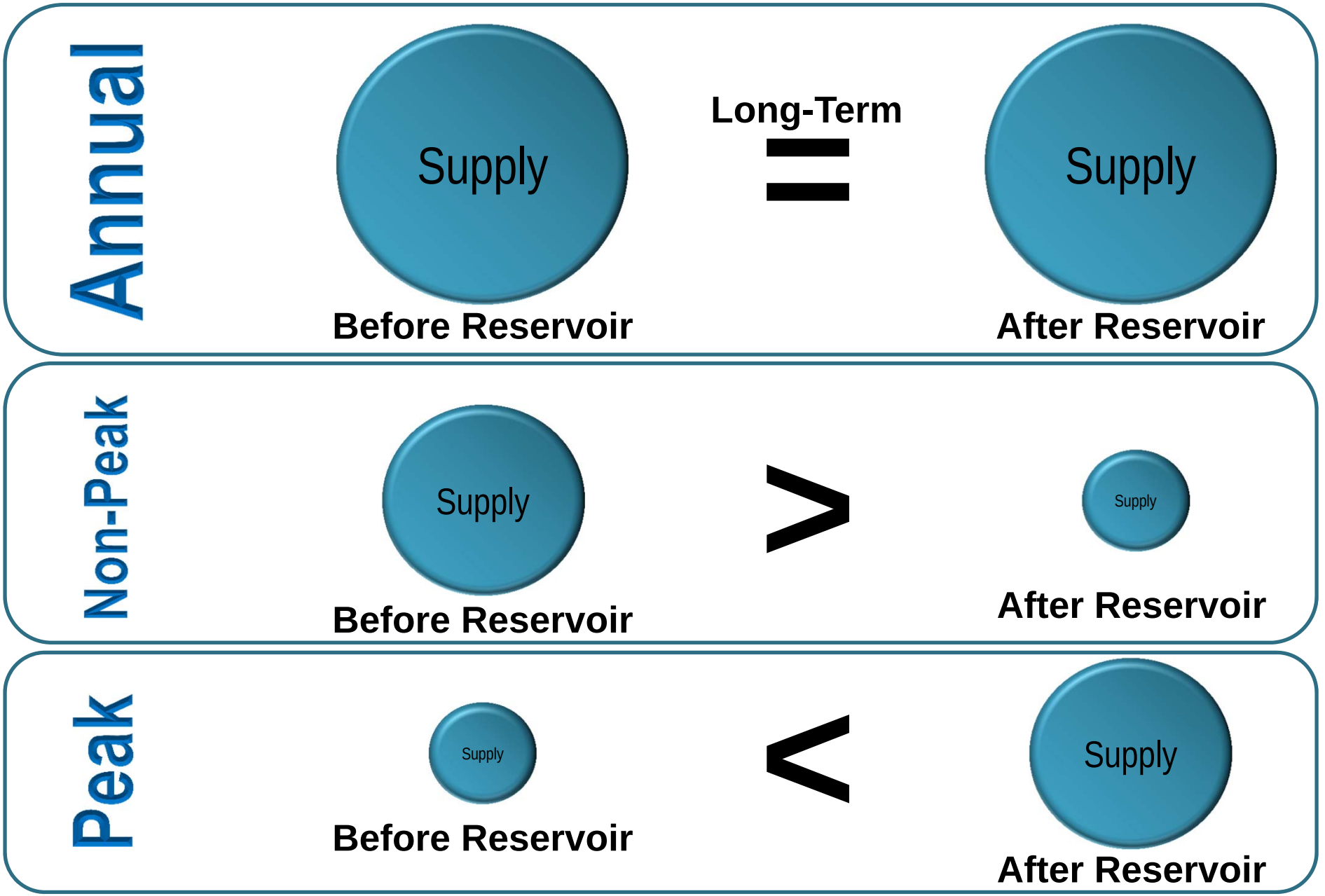
- Store flows during Non-Peak months, release when needed
- Permitting required
- New storage right and storage use rights through DNR
- Losses from reservoir to delivery point
- Could provided wet water when needed

Skull Creek Reservoir

Lower Platte River Flow



Skull Creek Reservoir

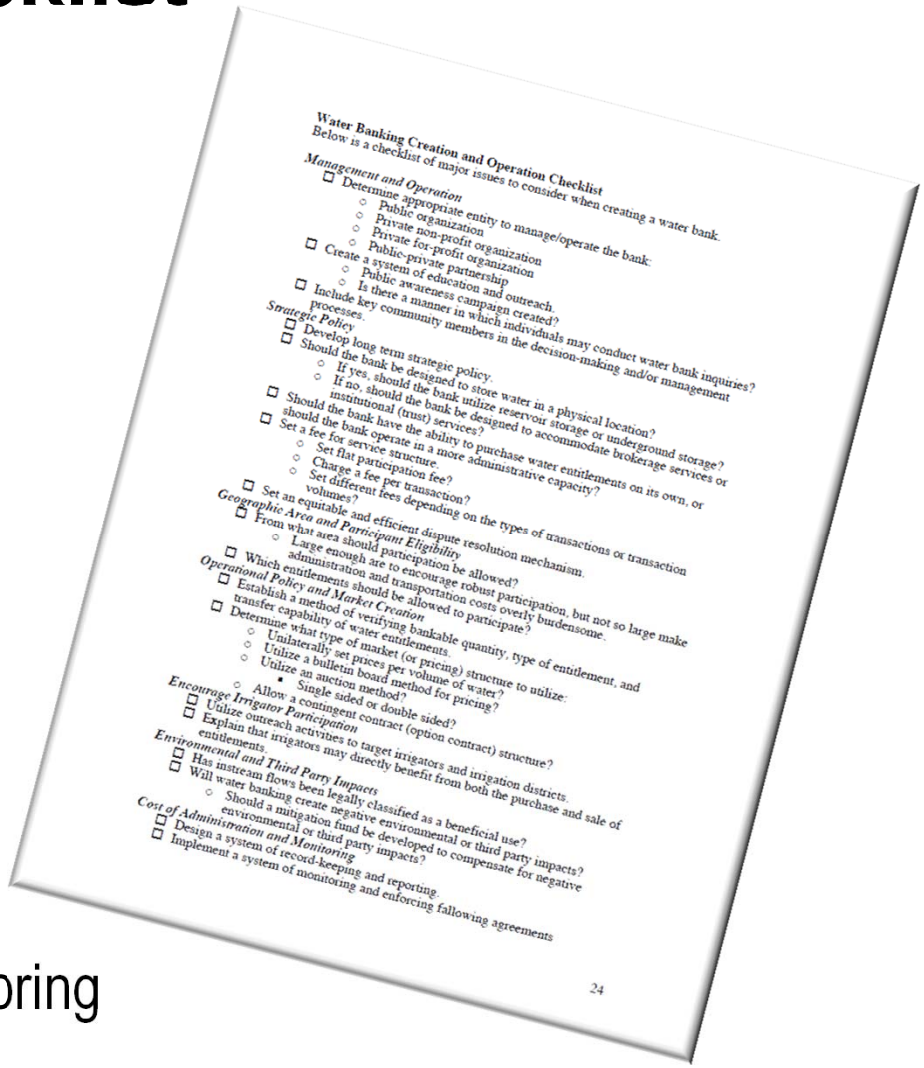


Skull Creek Reservoir

- New Construction
  - Environmental & Historical Reviews & Permitting
  - Design and Build Time
- DNR Permitting Requirements
  - Show that unappropriated water is available
  - New permit to impound water (storage right)
  - New permit to USE storage water (storage use right)

Water Banking Checklist

- Project Need
- Management and Operation
- Strategic Policy
- Geographic Area and Participant Eligibility
- Operational Policy and Market Creation
- Encourage Irrigator Participation
- Environmental and Third Party Impacts
- Cost of Administration and Monitoring



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- ☐ Include key community members in the decision-making and/or management processes.

Strategic Policy
- ☐ Develop long term strategic policy.
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- ☐ Set an equitable and efficient dispute resolution mechanism.

Geographic Area and Participant Eligibility
- ☐ From what area should participation be allowed?
  - ○ Large enough ate to encourage robust participation, but not so large make administration and transportation costs overly burdensome.
- ☐ Which entitlements should be allowed to participate?

Operational Policy and Market Creation
- ☐ Establish a method of verifying bankable quantity, type of entitlement, and transfer capability of water entitlements.
- ☐ Determine what type of market (or pricing) structure to utilize:
  - ○ Unilaterally set prices per volume of water?
  - ○ Utilize a bulletin board method for pricing?
  - ○ Utilize an auction method?
    - ▪ Single sided or double sided?
    - ▪ Allow a contingent contract (option contract) structure?

Encourage Irrigator Participation
- ☐ Utilize outreach acitvities to target irrigators and irrigation districts.
- ☐ Explain that irrigators may directly benefit from both the purchase and sale of entitlements.

Environmental and Third Party Impacts
- ☐ Has instream flows been legally classified as a beneficial use?
- ☐ Will water banking create negative environmental or third party impacts?
  - ○ Should a mitigation fund be developed to compensate for negative environmental or third party impacts?

Cost of Administration and Monitoring
- ☐ Design a system of record-keeping and reporting.
- ☐ Implement a system of monitoring and enforcing fallowing agreements

24

Water Banking Example

Skull Creek

Project Need & Strategic Policy

- Ensure minimum flows are met downstream at Ashland Wellfield
- Wet Water
- On Demand
- Cost Share with Partners and/or $$ for every release?
- Other potential benefits to the public:
  - Flood Control
  - Recreation
  - Fish & Wildlife Habitat and/or Restoration
  - Groundwater Recharge

Water Banking Example

Skull Creek

Management and Operation

- Owned by Lower Platte North NRD
- Interlocal agreement may be required between:
  - City of Lincoln
  - Lower Platte South NRD
  - Other Municipal Utilities
- Other user groups (recreation)?

Water Banking Example

Skull Creek

Geographic Area & Participant Eligibility

- Limited
  - Lower Platte North NRD
  - City of Lincoln
  - Lower Platte South NRD?
- Public outreach to recreation users

Water Banking Example

Skull Creek

Operational Policy and Market Creation

- Establish the amount of water for each purpose
- Verification through gage measurements
- Negotiate contractual releases
  - Cost Share with Partners?
  - $$ for every release?
  - Annual fee regardless of use?

Water Banking Example

Skull Creek

Encourage Irrigator Participation

- Not a major component
- Could consider it for a secondary supply for irrigators

Water Banking Example

Skull Creek

Environmental and Third Party Impacts

- Would require environmental reviews
- Negotiations with land owners required
- Review of economics – production land vs water payments or recreational benefits
  - Other monetary benefits?

Water Banking Example

Skull Creek

Cost of Administration and Monitoring

- Potential partnership with coalition or DNR on record keeping
- Utilize existing gauging stations
- Operations and Maintenance Needs of Infrastructure

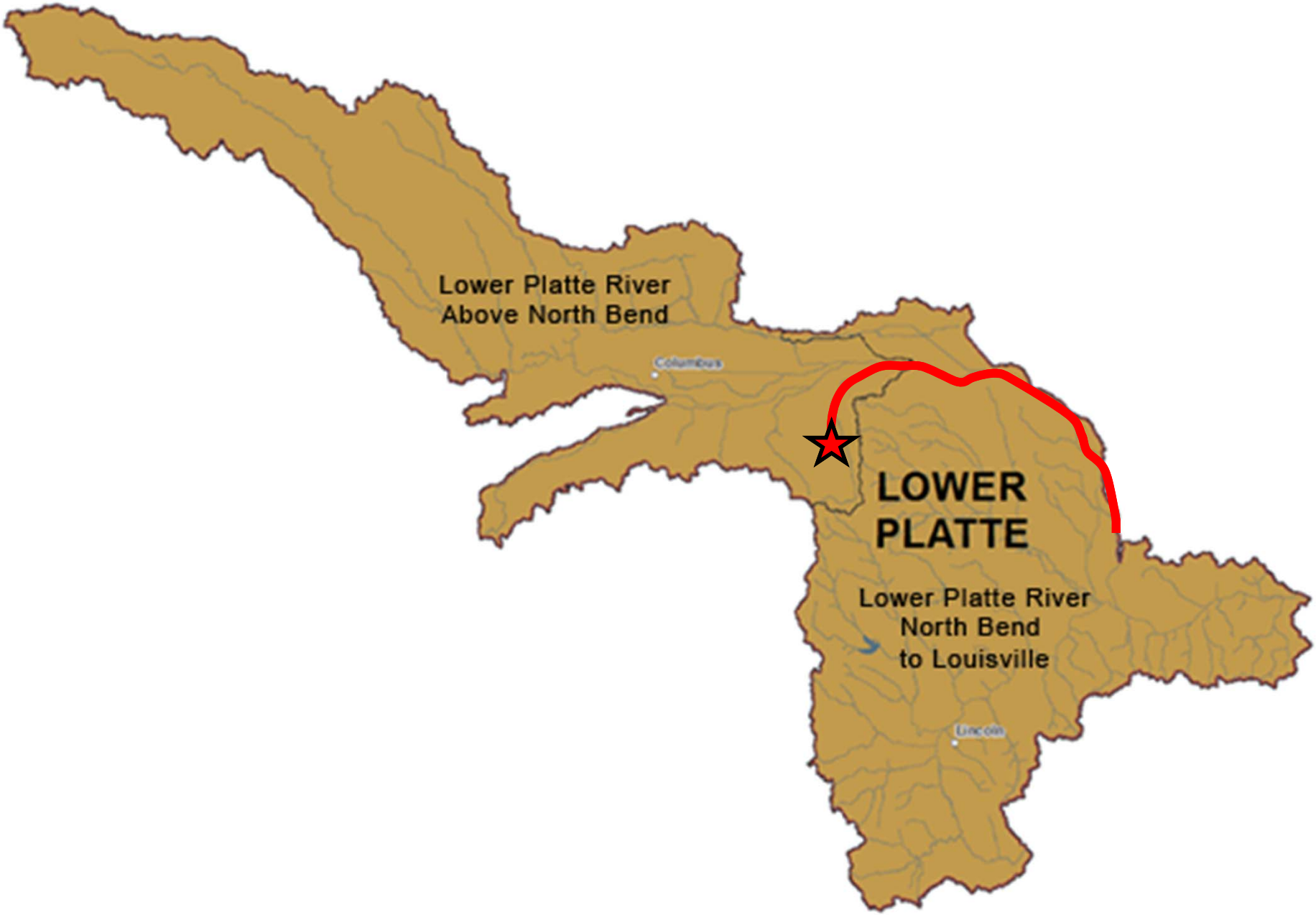
Impacts to Overall Basin Accounting

- Shift water supply from Non-Peak to Peak period
- Could be used to meet increased downstream demands during Peak period
- Would require cooperation between multiple NRDs – using common accounting

Summary

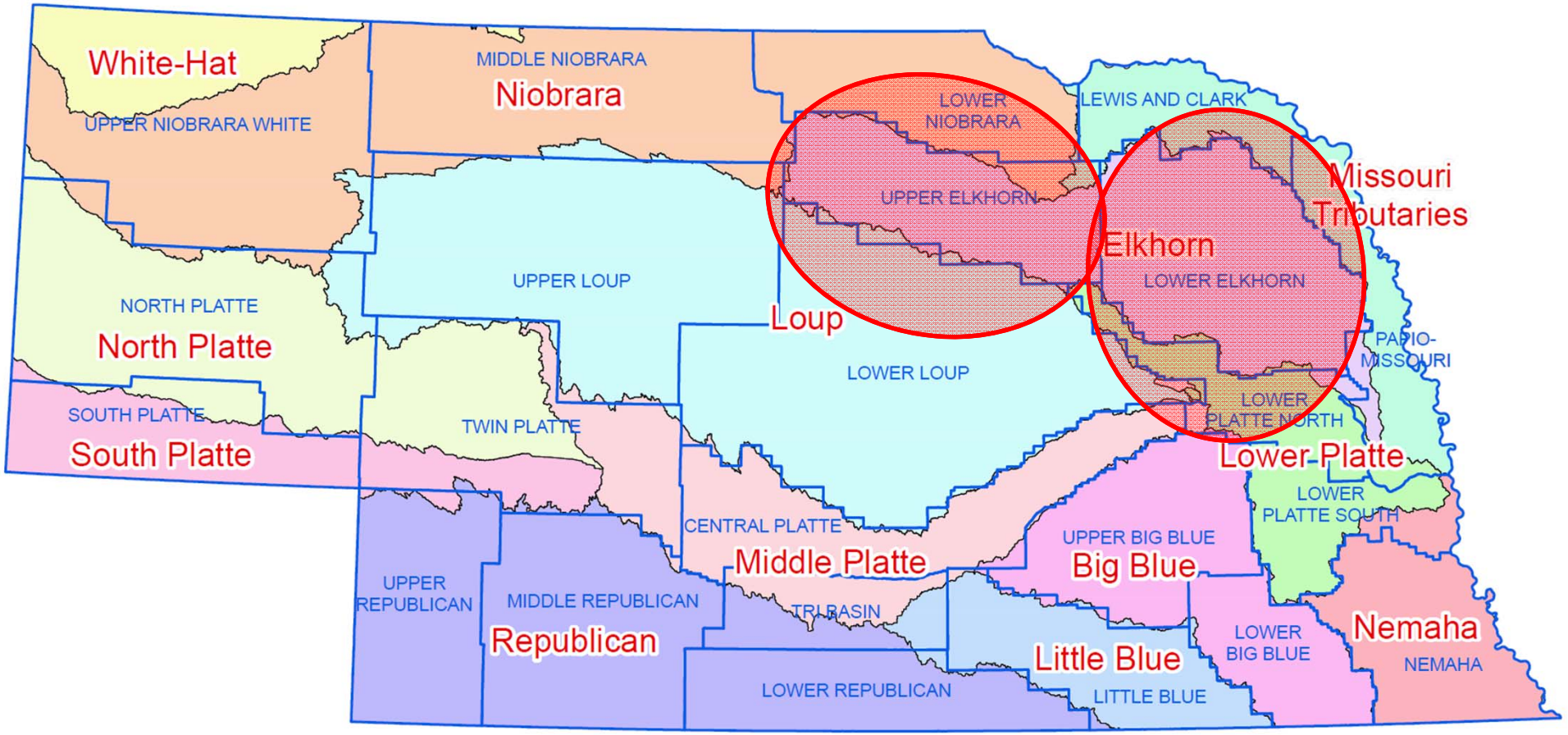
- New storage could be utilized to meet flows at Lincoln wellfields and provide benefits to other users
  - On Demand
  - Wet Water
- Considerable time from concept to operation – New Construction
- Multiple partners could benefit and share cost
- Need to ensure location provides adequate flows to delivery point

Skull Creek Reservoir



Water Bank Transfer

Water Banking Example
Lower and Upper Elkhorn Transfer



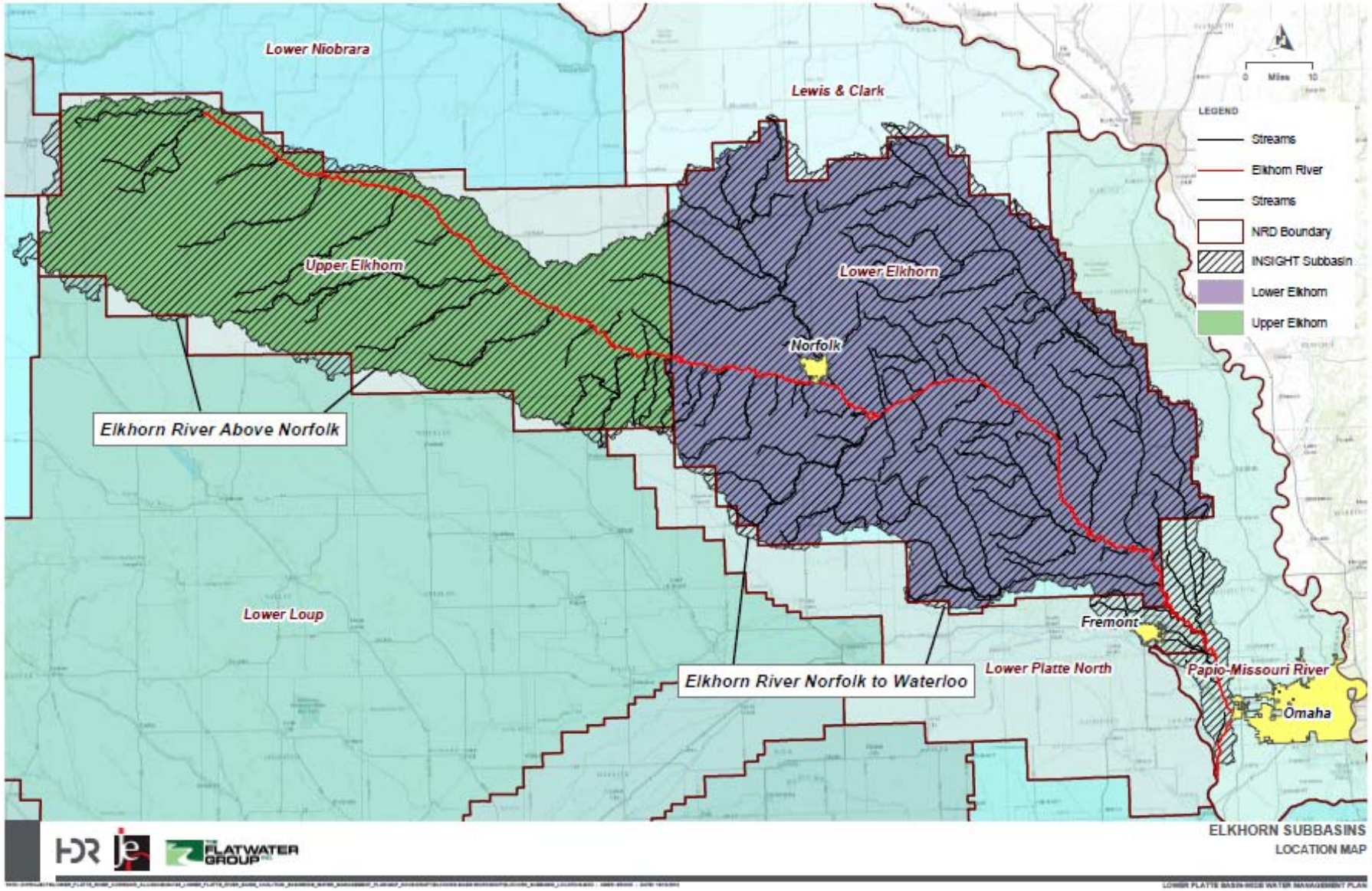
Water Banking Example
Lower and Upper Elkhorn Transfer

Concept

- **Transaction involving selling/transfer of one NRD's allowable development/banked water to another NRD. In this example Lower Elkhorn NRD is the seller and Upper Elkhorn NRD is the buyer, but framework and approach would be similar for transactions between all NRDs in Lower Platte River Basin.**

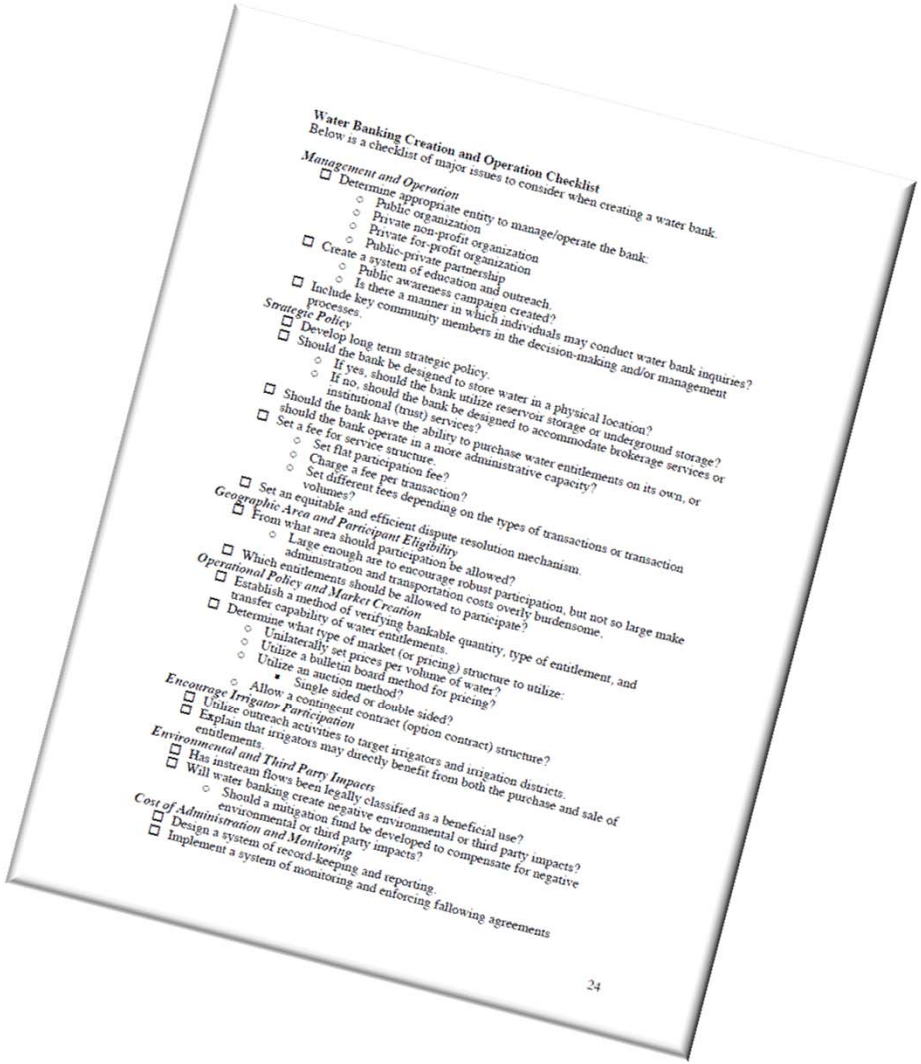
Water Banking Example

Lower and Upper Elkhorn NRD



Water Banking Example
Lower and Upper Elkhorn Transfer

Water Banking Checklist



Water Banking Creation and Operation Checklist

Below is a checklist of major issues to consider when creating a water bank.

Management and Operation

- ☐ Determine appropriate entity to manage/operate the bank.
  - ○ Public organization
  - ○ Private non-profit organization
  - ○ Private for-profit organization
  - ○ Public-private partnership
- ☐ Create a system of education and outreach.
  - ○ Public awareness campaign created?
  - ○ Is there a manner in which individuals may conduct water bank inquiries?
- ☐ Include key community members in the decision-making and/or management processes.

Strategic Policy

- ☐ Develop long term strategic policy.
- ☐ Should the bank be designed to store water in a physical location?
  - ○ If yes, should the bank utilize reservoir storage or underground storage?
  - ○ If no, should the bank be designed to accommodate brokerage services or institutional (trust) services?
- ☐ Should the bank have the ability to purchase water entitlements on its own, or should the bank operate in a more administrative capacity?
- ☐ Set a fee for service structure.
  - ○ Set flat participation fee?
  - ○ Charge a fee per transaction?
  - ○ Set different fees depending on the types of transactions or transaction volumes?
- ☐ Set an equitable and efficient dispute resolution mechanism.

Geographic Area and Participant Eligibility

- ☐ From what area should participation be allowed?
  - ○ Large enough are to encourage robust participation, but not so large make administration and transportation costs overly burdensome.
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Cost of Administration and Monitoring

- ☐ Design a system of record-keeping and reporting.
- ☐ Implement a system of monitoring and enforcing following agreements

24

Water Banking Example
Lower and Upper Elkhorn Transfer

- **Project Need**
- **Management and Operation**
- **Strategic Policy**
- **Geographic Area and Participant Eligibility**
- **Operational Policy and Market Creation**
- **Encourage Irrigator Participation**
- **Environmental and Third Party Impacts**
- **Cost of Administration and Monitoring**

Water Banking Example

Lower and Upper Elkhorn Transfer

Project Need

- Provide opportunity for further development in Upper Elkhorn NRD
- Provides opportunity to utilize surplus supplies within the Elkhorn River Basin

Water Banking Example
Lower and Upper Elkhorn Transfer

Management and Operation

- Interlocal agreement may be required between NRDs
- NRDs would operate water bank and programs for administration

Water Banking Example
Lower and Upper Elkhorn Transfer

Strategic Policy

- Transfer of allowable new uses to the Upper Elkhorn NRD
- Basinwide accounting would be basis for transfer and tracking
- Fee structure would require negotiations between NRDs
- Upper Elkhorn NRD could develop new uses or bank credits to offset depletions

Water Banking Example
Lower and Upper Elkhorn Transfer

Geographic Area and Participant Eligibility

- Lower and Upper Elkhorn NRDs in this example, but concept could apply to transfers across all Lower Platte Basin NRDs
- Any future use must still comply with individual IMPs, NRD rules, etc.
- Physical limitations (marginal lands, etc.) may exist
- Recognize/address potential impacts on subreaches

Water Banking Example
Lower and Upper Elkhorn Transfer

Operational Policy and Market Creation

- Verification through new use registration with NRD/DNR
- Price may be negotiated between NRDs, could also be set by open market
- Permanent transfer assumed – potential uses for non-permanent transfers?

Water Banking Example
Lower and Upper Elkhorn Transfer

Encourage Irrigator Participation

- Typically driven by commodity pricing
- NRD program for education and outreach

Water Banking Example
Lower and Upper Elkhorn Transfer

Environmental and Third Party Impacts

- Downstream appropriations already addressed in determining allowable development
- In example, would want to consider additional depletion effects at Norfolk
- Potential effects of additional GW development

Water Banking Example
Lower and Upper Elkhorn Transfer

Cost of Administration and Monitoring

- Would be outlined in interlocal agreement, likely each NRD responsible for their own administration
- Monitoring would be included in part of each NRD's annual monitoring and reporting efforts to the Coalition

Water Banking Example
Lower and Upper Elkhorn Transfer

Summary

- Water bank transfers would provide opportunity to spatially move allowable usage within the basin; facilitate fuller use of supplies
- Overall basin (measured at Louisville gage) balance would be maintained, but potential subreach impacts of moving uses would need to be addressed

Questions?

03 Basin-wide Accounting

Basin-wide Accounting Review

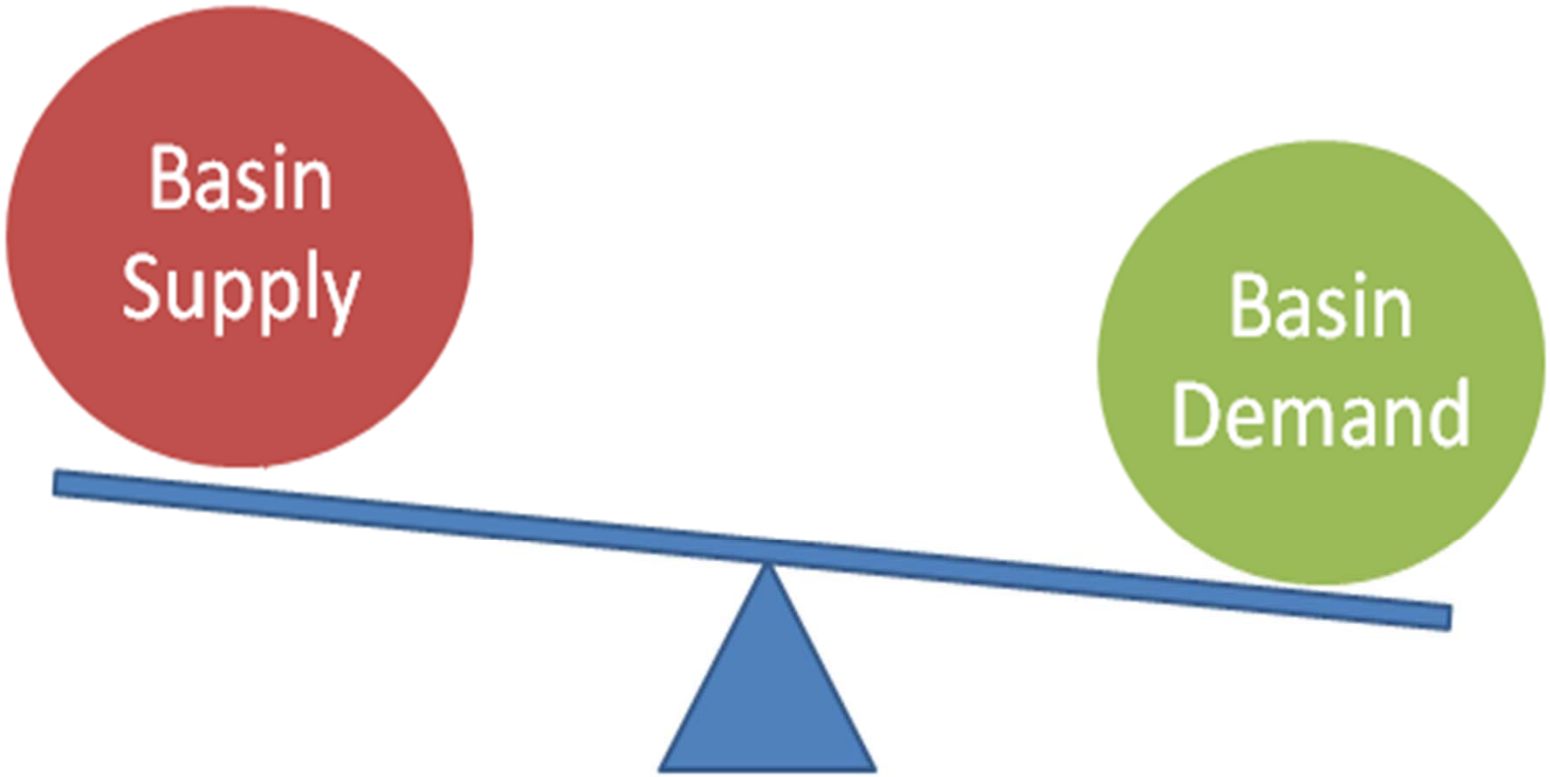
Basin-wide Accounting

Accounting fundamentals/tie to fully appropriated basin methodology

- Purpose/Goals:
  - Provide consistent basis for NRD/DNR management activities
  - Tie to Fully Appropriated Basin evaluation for consistency/limit surprises
  - Tool for monitoring/planning
  - Framework to inform individual NRD IMPs

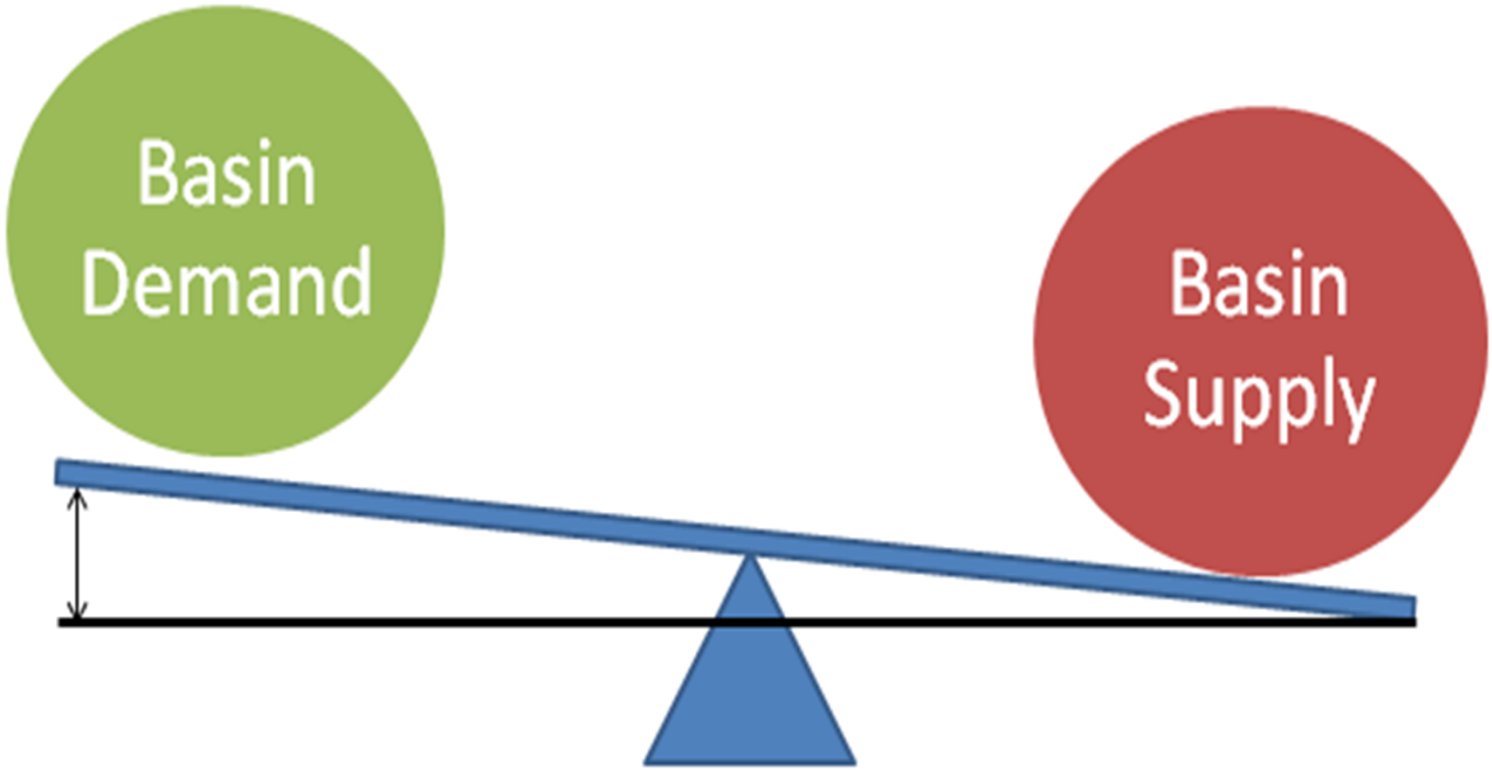
DNR FULLY-APPROPRIATED DETERMINATION:

If current demands will exceed basin supply in foreseeable future

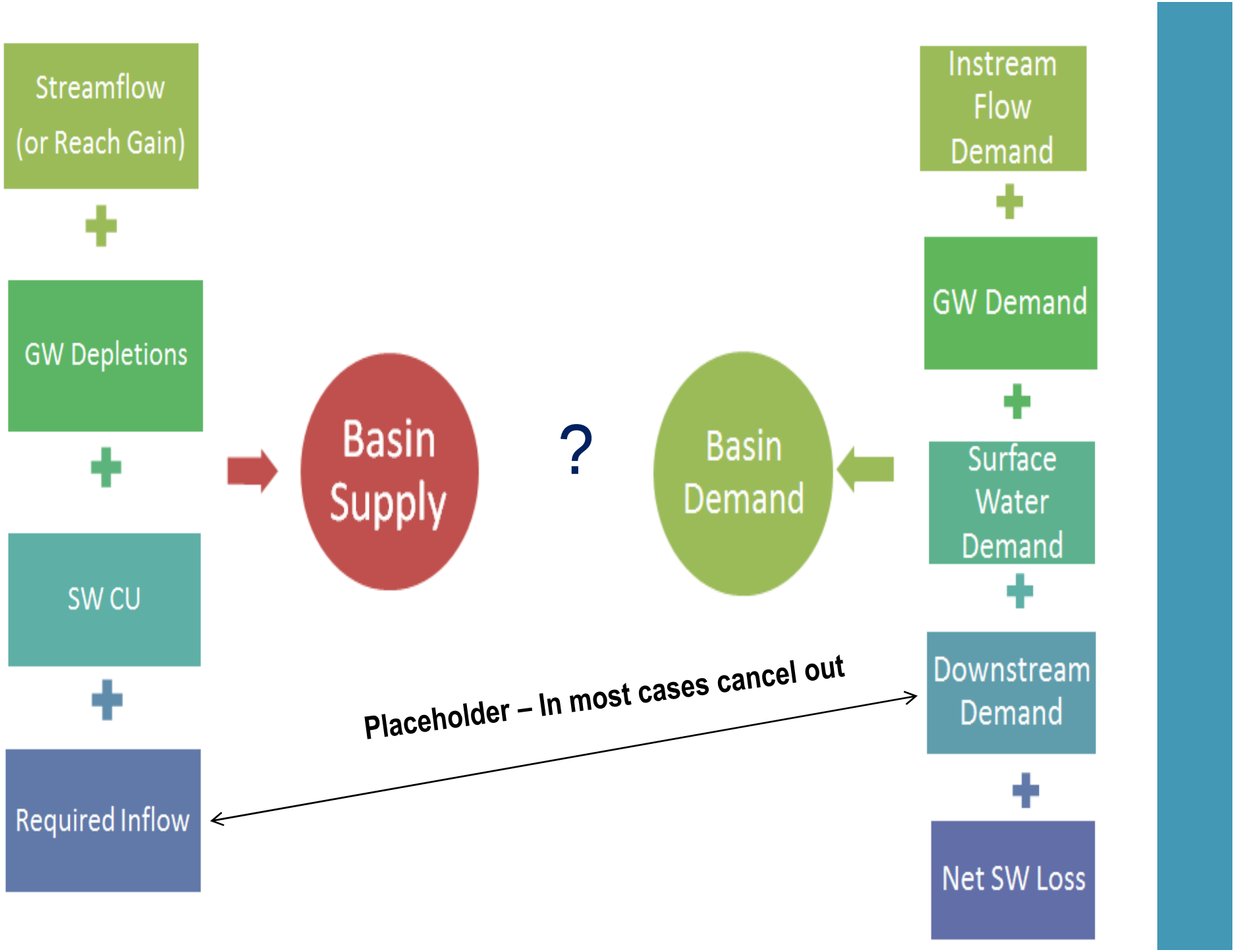


EXCESS SUPPLY:

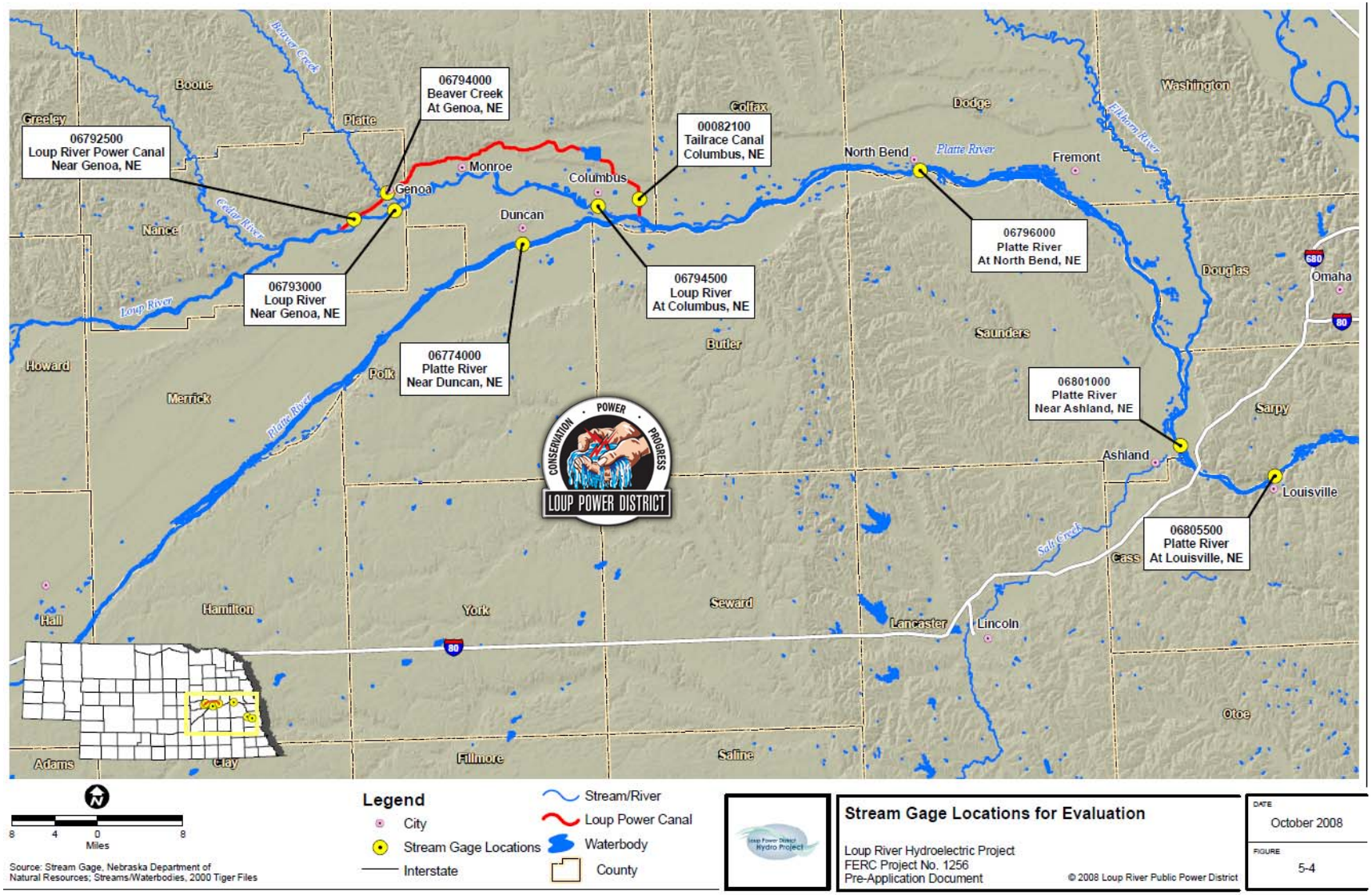
If supply exceeds demand, then water is available for development within the basin.



Loup River Hydropower Demand Effects


Streamflow (or Reach Gain)
GW Depletions
SW CU
Required Inflow
Basin Supply
?
Basin Demand
Instream Flow Demand
GW Demand
Surface Water Demand
Downstream Demand
Net SW Loss
Placeholder – In most cases cancel out

Loup Power District Vicinity Map



Loup Power District

- Large non-consumptive use in lower part of Loup River subbasin.
- Plays large role in both Loup subbasin demand; and therefore Lower Platte subbasin supply
- Preference doctrine provides statutory authority for use of Loup Power District's appropriation with appropriate subordination agreements
- Need for agreement on treatment of Loup demand – consistency between subbasins

Allowable Development Approaches

Allowable Development Approaches

Why is agreement amongst coalition members on allowable development important?

- Means to avoid fully appropriated status – maintains flexibility
- Provides level of certainty to dependent planning activities
- Critical to a water banking structure

Allowable Development Approaches

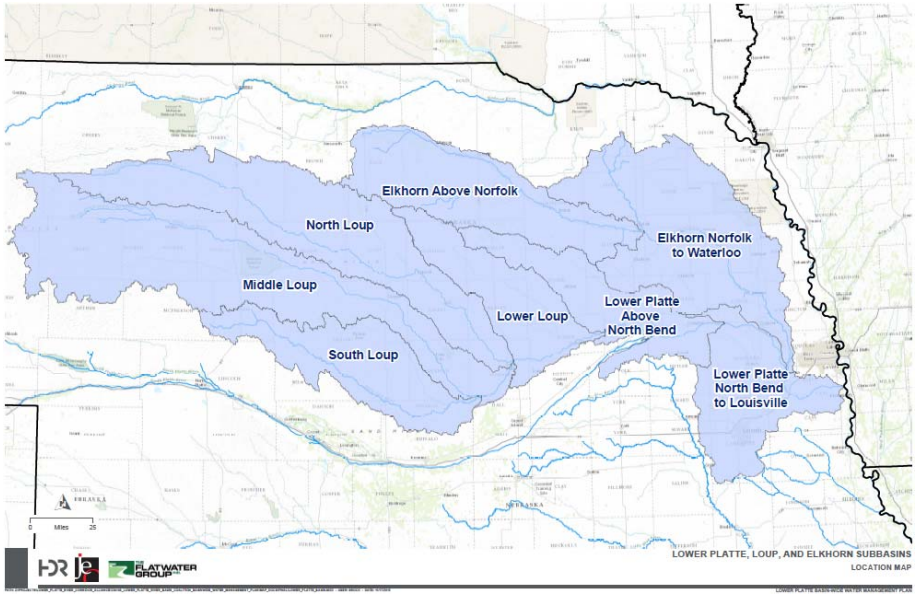
Several approaches being considered for establishing allowable development over the first five year increment:

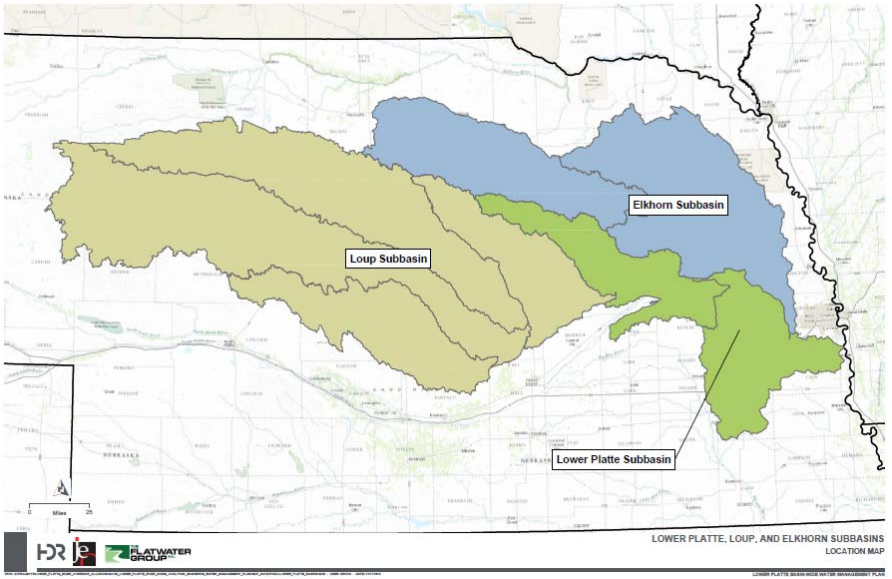
- Nominal volume to each NRD (not specifically based on computed supplies, demands, or surpluses)

Allowable Development Approaches (continued)

Treat entire basin as a whole and quantify surpluses at Louisville, then distribute based on:

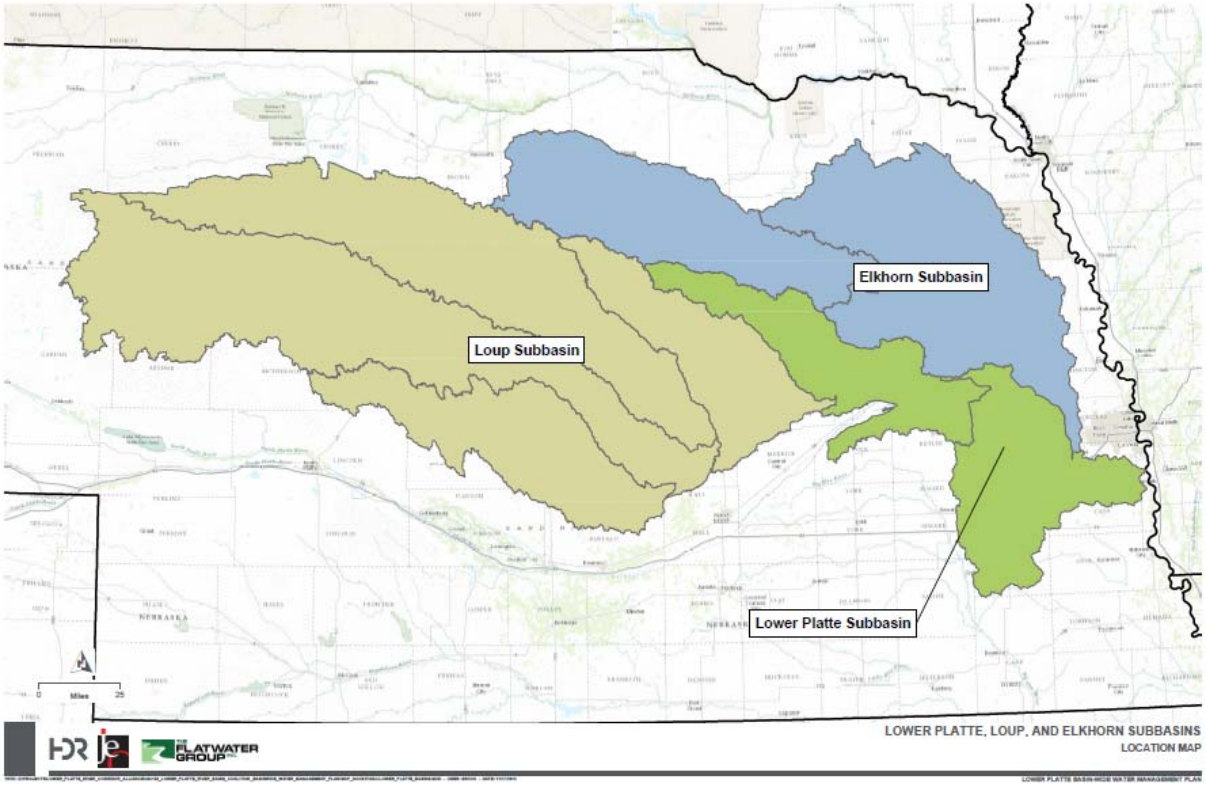
- Equally amongst NRDs
- By subbasin based on proportion of supply
- By subbasin based on proportion of irrigated acreage





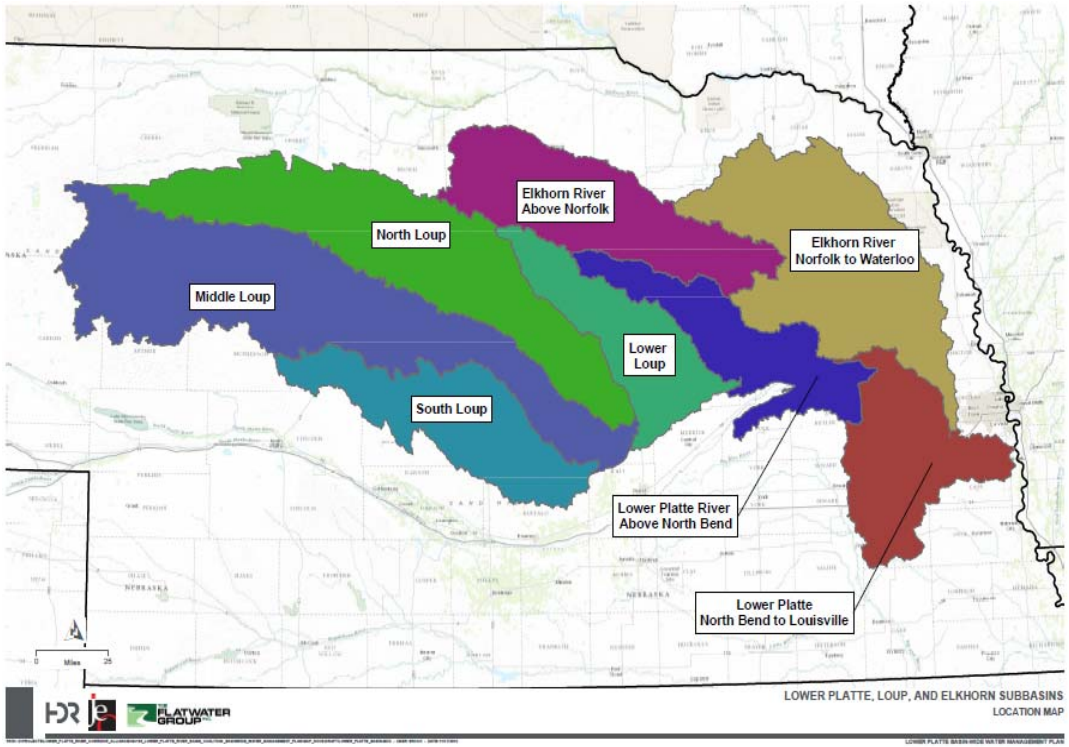
Allowable Development Approaches (continued)

- Determine allowable development by subbasin by comparing supplies and uses by subbasin (Elkhorn, Loup, Lower Platte Reach)



Allowable Development Approaches (continued)

- Determine allowable development using available gages within each individual subbasins
  - 4 in the Loup
  - 2 in the Elkhorn
  - 2 in the Lower Platte Reach



04 Water Management Plan Elements and Next Steps

Water Management Plan Elements

Final plan document to include:

Purpose and Scope of Plan
Background/Basin Description
Goals and Objectives
Components of the Plan and Prioritized Action Items
Plan Review and Monitoring

Appendix A – Existing surface and groundwater controls
Appendix B – Existing data and data collection
Appendix C – Basin-Wide Accounting
Appendix D – Conjunctive Management and Additional Water Supply Alternatives
Appendix E – Water Banking System Concepts and Recommendations
Appendix F – Facilitation and Coordination Documentation

Next Steps

Final plan identifies and prioritizes actions over the first five year increment, as well as supporting information and recommendations for consideration during implementation.

- Approval of plan by individual NRDs
- Develop implementation plan for action items
- Establish monitoring and reporting protocols
- Identify potential projects, partners and participants for water banking/conjunctive management projects
- Coordinate basin-wide accounting with final DNR Methodology
- Annual reporting meetings of Coalition

05 Public Comment/Other Discussion