

# Welcome!

Thank you for joining us for the **Republican River Basin Annual Meeting**.

Please sign in:

- **In-person attendees:** the sign-in sheet is located on the table near the entrance.
- **Virtual attendees:** please type in your first and last name and affiliation in the chat. Also, please make sure your name is set as your screen name.

# Republican River Basin-Wide Plan Third Annual Meeting

November 15, 2021

Cambridge Community Building



# Nebraska Open Meetings Act

## ➤ Location of:

- Open Meetings Act
- Sign-in-Sheets

## ➤ Where meeting was noticed:

- Benkelman Post and News Chronicle
- Grant Tribune
- Harlan County Journal
- Holdrege Daily Citizen
- Imperial Republican
- McCook Gazette
- North Platte Telegraph
- The Valley Voice

- [rrbwp.nebraska.gov](http://rrbwp.nebraska.gov)
- [dnr.nebraska.gov](http://dnr.nebraska.gov)
- [lnrd.org](http://lnrd.org)
- [mrnr.org](http://mrnr.org)
- [tribasinnrd.org](http://tribasinnrd.org)

# Meeting Agenda

Link to Annual Report:  
[rbbwp.nebraska.gov](http://rbbwp.nebraska.gov)

## Third Annual Meeting Republican River Basin-Wide Plan

Monday, November 15, 2021  
2:00 pm Central Time (1:00 pm Mountain Time)

Cambridge Community Building  
722 Patterson Street  
Cambridge, NE

Virtual participation option via Zoom

<https://us02web.zoom.us/j/84293201100>; phone 1 312 626 6799, meeting ID 842 9320 1100)

### Agenda

1. Welcome and introductions
  - a. Nebraska Open Meetings Act requirements
  - b. Review agenda and meeting objectives
  - c. Introductions
2. Plan implementation progress
  - a. Annual Report: Plan Implementation Progress 2020
    - i. Water supplies and uses in the basin
    - ii. Progress toward goals and objectives of the plan
      1. Management activities
      2. Measurable Hydrologic Objectives (MHOs)
  - b. Drought planning exercise
  - c. Feasibility and potential impacts of planned projects
3. Collaboration
  - a. Existing and potential new water conservation programs
  - b. Information sharing about water user management practice improvements
    - i. Future opportunities to encourage and support water users to share information about management practice improvements
    - ii. Guest speaker/presentation
4. Conflicts Resulting from Implementation of the Plan, if any (Sam)
  - a. None submitted for consideration
5. Public comment

# Introductions

# Water Supplies and Uses in the Basin

## ➤ Location in Report

|   |    |
|---|----|
| Water Supplies and Uses in the Basin.....         | 3  |
| Upper Republican Natural Resources District ..... | 5  |
| Middle Republican Natural Resources District..... | 8  |
| Lower Republican Natural Resources District.....  | 11 |
| Tri-Basin Natural Resources District.....         | 14 |
| Nebraska Department of Natural Resources.....     | 17 |
| Augmentation Pumping.....                         | 27 |

# Water Supplies and Uses – What's Included?

## NRDs

- Allocations
- Annual Groundwater Use for Irrigation
- Conservation and Irrigation Buyout Programs and # of acres involved
- Groundwater Levels and Observation Well Locations
- Curtailment of Groundwater Pumping for Compact Compliance

## Augmentation Pumping

- N-CORPE
- Rock Creek
- Turkey Creek

## NeDNR

- Precipitation
- Streamflow
- Irrigated Acres
- Allocation and Computed Beneficial Consumptive Use (CBCU)
- Reservoir Storage and Evaporation
- Surface Water Municipal and Industrial CBCU
- Qualitative Evaluation of Net Effect of Management Actions for Compact Compliance

# Qualitative Evaluation of Effects of Management Actions for Compact Compliance on Water Users (p. 26)

- In 2020, no management actions taken for 2020 Compact compliance
- Effects of 2020 actions to help with future compliance:

| Action  | Effect   |
|---|--|
| Enroll or re-enroll landowners in temporary or permanent irrigation buyout programs | Reduce consumptive use of water  |
| Allocations on groundwater use  | Reduce consumptive use of water  |
| Water Conservation Incentive Program (TBNRD voluntary allocation program)           | Reduce consumptive use of water  |
| Support FCID and NBID to automate canal gates/headgates                             | Reduce unintended operational spills, increase reliability of surface water supplies, allow more water to be stored in Swanson and Harlan County Lake Reservoirs |



# Progress toward Goals and Objectives

## ➤ Location in Report

|  |    |
|--|----|
| Management Activities .....  | 29 |
| Progress Snapshot .....  | 31 |
| Progress Summaries .....   | 38 |
| Assessment of Measurable Hydrologic Objectives (MHOs).....             | 60 |
| MHO A Evaluation.....  | 60 |
| MHO A Assessment Criteria.....   | 60 |
| MHO A Evaluation Results for 2020.....                                 | 61 |
| Tri-Basin NRD Hydrologically Balanced Assessment Results for 2020..... | 62 |
| MHO B Evaluation .....   | 64 |
| MHO C Evaluation .....   | 64 |
| MHO D Evaluation.....  | 64 |
| MHO D Assessment Criteria.....   | 64 |
| MHO D Evaluation Results for 2020 .....                                | 65 |
| MHO E Evaluation .....   | 65 |
| MHO E Assessment Criteria .....  | 65 |
| MHO E Evaluation Results for 2020 .....                                | 65 |

# Progress Towards Plan Goals and Objective NRD Updates

- URNRD
- MRNRD
- LRNRD
- TBNRD

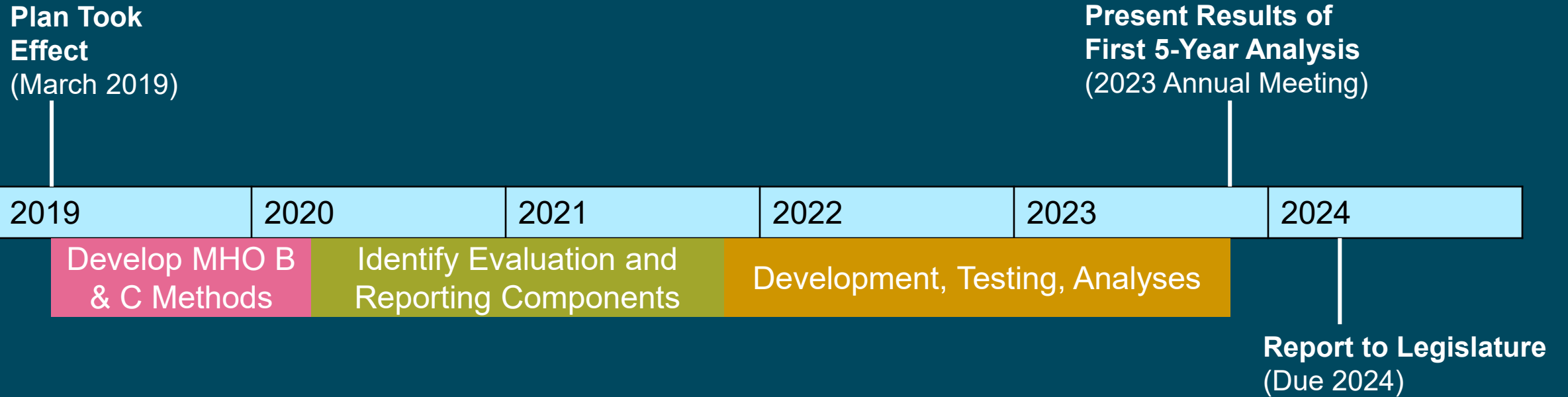
# Progress Towards Plan Goals and Objective NeDNR Update

- 5-Year Technical Analysis
- Drought Planning Exercise
- Water Market Feasibility Study

# 5-Year Technical Analysis – Progress

| Requirement from Statute  | What to Include (Draft)  |
|---|--|
| Available supplies, current uses, and changes in long-term water availability | <ul style="list-style-type: none"><li>• Evaluation of GW allocations and SW allotments</li><li>• Residual impacts of pumping</li><li>• Groundwater depletions to streamflow</li><li>• Supplies, uses, depletions, and other INSIGHT data</li><li>• IMP short and long-term compliance standards</li><li>• TBNRD Hydrologically Balanced Analysis</li><li>• Groundwater levels</li><li>• Scenarios comparing management action alternatives</li></ul> |
| Effects of conservation practices and natural causes                          | <ul style="list-style-type: none"><li>• Drought</li><li>• Flooding</li><li>• Literature review of effects of conservation practices</li></ul>  |
| Effects of the plan in sustaining a balance between water uses and supplies   | Evaluation of Measurable Hydrologic Objectives (MHOs)  |






# 5-Year Technical Analysis - Timeline



# 5 Measurable Hydrologic Objectives (MHOs)

| Measurable Hydrologic Objective (MHO)  | Evaluation Frequency             |
|--|----------------------------------|
| <b>MHO A: Maintain each NRD's net groundwater depletions to streamflow within its portion of Nebraska's allowable groundwater depletions to streamflow</b>                                     | <b>Annually</b>                  |
| MHO B: Limit groundwater depletions to streamflow to a relatively constant level over the long-term both across the basin as a whole and within each NRD                                       | Every 5 years, beginning in 2023 |
| MHO C: Ensure there is always enough groundwater for all groundwater uses within the timeframe of this plan, either by stabilizing groundwater levels or managing declining groundwater levels | Every 5 years, beginning in 2023 |
| <b>MHO D: Continue existing and initiate new actions that reduce the need for special regulations in the Rapid Response Area for Compact compliance</b>  | <b>Annually</b>                  |
| <b>MHO E: Continue existing and initiate new actions that reduce the need for administration of surface water use for Compact compliance</b>   | <b>Annually</b>                  |

# MHO A

|                                     |   |   |   |
|-------------------------------------|---|---|---|
| <b>Key to Possible Test Results</b> |  MHO is being achieved. NRD's actual depletions were within its allowable depletions. No further discussion is needed.       |   |   |
|                                     |  MHO is not being achieved. NRD's actual depletions exceeded its allowable depletions. Discussion of next steps is required. |   |   |
| <b>NRD</b>                          | <b>Upper Republican</b>   | <b>Middle Republican</b>  | <b>Lower Republican</b>   |
| <b>NRD's Results for 2020</b>       |    |  |  |

|                                   | Difference between allowable depletions an actual groundwater net depletions (acre-feet) |                              |                             |
|-----------------------------------|--|------------------------------|-----------------------------|
| <b>Year</b>                       | <b>Lower Republican NRD</b>  | <b>Middle Republican NRD</b> | <b>Upper Republican NRD</b> |
| 2016                              | 8,676  | 9,724                        | 5,175                       |
| 2017                              | 3,862  | 14,687                       | 17,291                      |
| 2018                              | 540  | -1,919                       | 2,922                       |
| 2019                              | 40,262   | 46,951                       | 65,758                      |
| 2020                              | 14,844   | 28,487                       | 26,355                      |
| <b>5-year average (2016–2020)</b> | <b>13,637</b>  | <b>19,586</b>                | <b>23,496</b>               |
| <b>5-year average positive?</b>   | <b>Yes</b>   | <b>Yes</b>                   | <b>Yes</b>                  |

# MHO A, TBNRD

|  |  |
|--|--|
| <p><b>Key to Possible Test Results</b></p>     | <ul style="list-style-type: none"> <li><span style="color: green; font-size: 2em;">●</span> In compliance with IMP. On a three-year rolling average basis, depletions from groundwater pumping did not exceed accretions from the mound. Also, sufficient management actions were taken in 2020 to offset net depletions from previous year's test, if any. No further discussion is needed.</li> <li><span style="color: yellow; font-size: 2em;">▲</span> Caution. On a three-year rolling average basis, depletions from groundwater pumping exceeded accretions from the mound. Under the terms of the IMP, management actions are required to maintain a hydrologically balanced condition. Discussion of next steps is required.</li> <li><span style="color: red; font-size: 2em;">⊘</span> Insufficient management actions were taken in 2020 to offset net depletions from previous year's assessment. Discussion of next steps is required.</li> </ul> |
| <p><b>Tri-Basin NRD's Results for 2020</b></p> | <p style="text-align: center; color: green; font-size: 2em;">●</p>   |

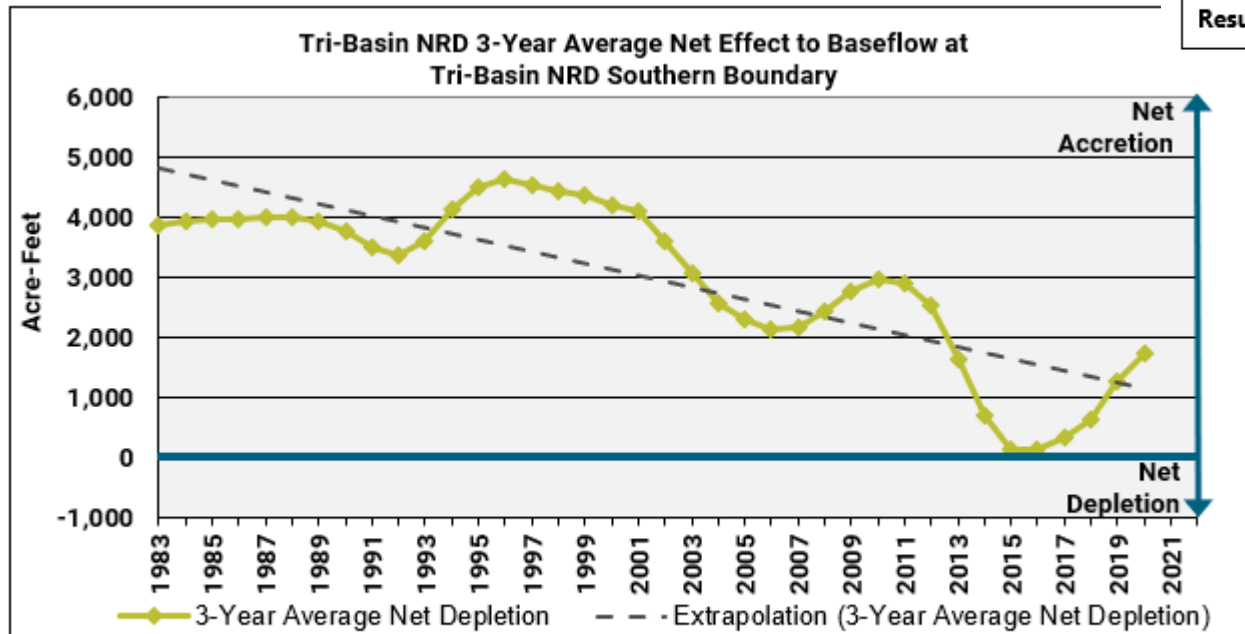










Figure 12. Rolling three-year average net effect to baseflow as the total of modeled values of streamflow depletion and mound accretions, using the August 2020 RRCA Accounting Procedures and the RRCA groundwater model.



# MHO D

|                                     |   |   |   |
|-------------------------------------|---|---|---|
| <b>Key to Possible Test Results</b> |  MHO is being achieved. NRD did not curtail groundwater pumping within the Rapid Response Area to ensure Compact compliance. No further discussion needed.       |   |   |
|                                     |  MHO is not being achieved. NRD curtailed groundwater pumping within the Rapid Response Area to ensure Compact Compliance. Discussion of next steps is required. |   |   |
| <b>NRD</b>                          | <b>Upper Republican</b>   | <b>Middle Republican</b>  | <b>Lower Republican</b>   |
| <b>NRD's Results for 2020</b>       |    |  |  |

# MHO E

|                                     |   |
|-------------------------------------|---|
| <b>Key to Possible Test Results</b> |  MHO is being achieved. NeDNR did not administer surface water to ensure Compact compliance, except as required under the Final Settlement Stipulation (FSS). No further discussion needed. |
|                                     |  MHO is not being achieved. NeDNR administered surface water to ensure Compact Compliance. Discussion of next steps is required.   |
| <b>Results for 2020</b>             |    |

# Drought Planning Exercise

# Feasibility & Potential Impacts of Planned Projects

- Platte Republican Diversion Application
- NBID Superior Canal Project
- NRCS Watershed Grants

# Republican River NRD acres that are purchased or leased and can no longer be irrigated, 2020 \*

| NRD                   | CREP *    | NRD/NeDNR & AWEP |
|-----------------------|-----------|------------------|
| Upper Republican NRD  | 10,589.34 | 3,914.3          |
| Middle Republican NRD | 16,558.51 | 2,063.4          |
| Lower Republican NRD  | 8,382.17  | 2,784.74         |
| Tri-Basin NRD         | 2,200.65  | N/A              |

CREP \* = Cooperative Reserve Enhancement Program (as of 9/30/2020)

NRD/NeDNR = Permanent irrigation buyout program jointly funded by the NRD and NeDNR

AWEP = Agricultural Water Enhancement Program AWEP program (no new contracts after 2014)

# Tri-Basin Water Conservation Incentive Program (WCIP)

Discussion: Future Opportunities to encourage & support water users to share information about management practices.

# Guest Speakers

- UNL ET Project
- FCID
- NBID
- H&RW/FVID

# Conflicts Resulting from Plan Implementation

- Appendix E: Procedures for Addressing Conflicts Resulting from Implementation of the Republican River Basin-Wide Plan
- No conflicts submitted for consideration.



# Public Comment