

## 2. Goals and objectives

### Section Overview

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The Goals and Objectives section of the Republican River Basin-Wide Plan (Plan) begins by listing the goals of the Plan. Then, the management actions that will be taken to achieve the Plan's goals and objectives are described in detail.

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### List of Goals

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The goals of the Plan are:

1. Maintain Nebraska's compliance with the Republican River Compact and applicable state laws
2. Maximize Nebraska's efficient and beneficial consumptive use of its portion of the water supply, increase certainty for long-range planning of water supplies to reduce the need for regulatory actions, and increase collaborative efforts among water management entities and stakeholders across the Basin
3. Positive public relations, including information sharing, within and outside the Basin
4. When possible, pursue projects that not only benefit water supplies and uses, but also create benefits for fish, wildlife, recreation, and conveyance within the Republican River Basin

Information about planned implementation of these goals can be found in the following locations of the Plan:

- A general timeline and framework for implementation is listed under "Management Activities to Achieve Goals and Objectives" (page 2).
- Following this general timeline and framework, each goal, objective, and action item is listed in a gray box, followed by a more detailed description of each one containing additional information and guidelines.
- The "Plan Implementation Schedule" section of the Plan (page [#]) provides a quick reference listing all of the Plan's goals, objectives, and action items without additional description, as well as a detailed implementation schedule.

## **Management Activities to Achieve Goals and Objectives**

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The goals, objectives, and action items described on the following pages provide a framework for how the Plan will be carried out and what specific outcomes we hope to achieve.

Monitoring, reporting, and evaluation of the Plan's management activities follow the framework described in the Plan's "Monitoring" section (page [#]), which can be summarized as:

1. Implementation of the goals, objectives, and action items of the Plan will follow the schedule indicated in the "Plan Implementation Schedule" section (page [#]).
2. NeDNR and the NRDs will exchange data annually, as described under "Reporting" (page [#]) and "Annual Meeting" (page [#]), to assist with the evaluation of Plan progress.
3. Progress towards each management activity will be evaluated as part of each five-year technical analysis, as described under "Five-Year Technical Analysis" (page [#]).
4. If the evaluation of progress made toward any management activity indicates a need to revise this Plan, the resulting Plan modifications will be made following the procedures described under "Modifications to the Plan" (page [#]).

The following pages list the objectives and action items associated with each of the Plan's goals, provide details about how each goal, objective, and action item will be implemented, and indicate how various goals, objectives, and action items relate to one another and to other parts of this Plan.

**Goal 1:** Maintain Nebraska's compliance with the Republican River Compact and applicable state laws

Goal 1, maintaining compliance with the Republican River Compact (Compact) and state laws, is an overarching goal for this Plan that must be considered throughout implementation of all other goals, objectives, and action items. Compliance with the Compact, including consistency with Compact accounting procedures, applies to the implementation of both this Plan and to the individual integrated management plans (IMPs).

**Objective 1.1:** Coordinate basin-wide plan management actions with Nebraska's Compact compliance efforts and adherence to applicable state laws

This objective means that all actions of this Plan must be evaluated in the context of both Nebraska's obligations under the Compact and applicable Nebraska laws; therefore, the action items associated with this objective must be carried out any time an action is taken in pursuit of any other goal, objective, or action item found within this Plan. Action Items 1.1.1 and 1.1.2 provide details about how to coordinate management actions with Compact compliance and adherence to state laws.

**Action Item 1.1.1:** Review each basin-wide plan management action prior to implementation to ensure it does not negatively impact efforts to achieve Compact compliance in the most efficient and cost-effective way practicable while adhering to state laws

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When appropriate

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This action item specifies that before any management action may be taken under this Plan, NeDNR and the NRDs will evaluate the potential action to ensure that two criteria are satisfied: no negative impact on Nebraska's efforts to achieve Compact compliance in the most efficient and cost-effective way practicable, and adherence to state laws. This evaluation is described in more detail in the following paragraphs.

One criterion that must be satisfied under this action item is that each proposed management action will not negatively impact Nebraska's efforts to achieve compliance with the Compact in the most efficient and cost-effective way practicable. These efforts include any management actions undertaken by NeDNR or the NRDs for the purpose of Compact compliance in accordance with the joint integrated management plan (IMP) for each NRD.

In situations where one aspect of a project would have a negative impact on Nebraska's efforts to achieve compliance and another aspect of the same project would have a positive impact, then the final evaluation of the project's impact on Compact compliance efforts described under this action item should consider the cumulative impacts of the project as a whole. For example, a management action that increases consumptive use of water might be expected to adversely impact Nebraska's Compact compliance efforts; however, if the same project includes a component that reduces consumptive use in another location in the Basin, the net effect might reduce overall consumptive use in the Basin, which would have a positive effect on Nebraska's Compact compliance efforts.

The other criterion that must be satisfied under this action item is that each proposed management action will adhere to all Nebraska's state laws. Examples of state laws to consider include, but are not limited to, the laws protecting existing surface water and groundwater users and laws related to permits required for water management projects.

**Action Item 1.1.2:** Implement appropriate offsets for any basin-wide plan action that would exceed Nebraska's allocation under the Compact



Under the Compact, Nebraska has an allocation that limits how much water from within the Basin can be used. This allocation varies each year with available water supplies and consumptive use within all three states that are a part of the Compact (Nebraska, Kansas, and Colorado). To comply with the terms of the Compact, Nebraska's net water use must remain within its allocation over specified averaging periods.

If any basin-wide plan action does cause Nebraska to exceed its allocation under the Compact, appropriate offsets will be implemented during the same accounting period following the procedures detailed in the IMPs for the Basin's NRDs. In this context, offsets are actions that either reduce water use or increase water supply for the purpose of staying within Nebraska's Compact allocation.

**Objective 1.2:** Understand the effects of management actions for Compact compliance on water supplies for Nebraska's water users

The purpose of this objective is to ensure that for any management actions undertaken for Compact compliance, the effects of those management actions on the water supplies available to Nebraska's existing surface water and groundwater users are understood.

**Action Item 1.2.1:** Qualitatively evaluate the net effect on water supplies of any management actions that are taken for Compact compliance



For any management action undertaken for the purposes of complying with the Compact, NedNR or the NRDs will evaluate the effect of those actions on Nebraska's Compact allocation and balance, and will also qualitatively evaluate the net effect of those management actions on the water supplies available to Nebraska's existing surface water and groundwater users. This information will be reported at each annual meeting as a generalized, qualitative description.

**Objective 1.3:** Assess progress toward meeting the goals and objectives of the Plan, and share the results of this assessment with the Public and the Nebraska Legislature

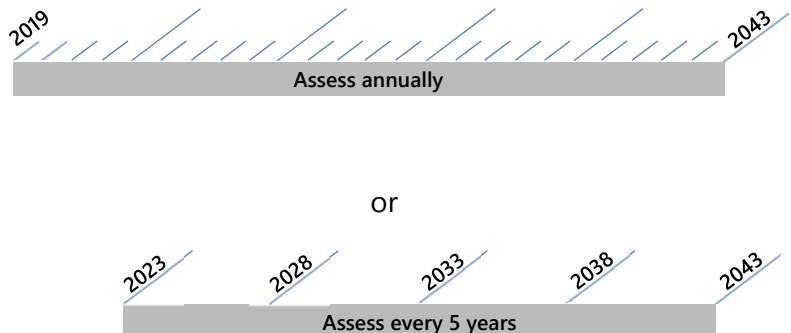
Statute requires that NeDNR and the NRDs address progress toward meeting the goals and objectives of the Plan and that they share the results of this assessment with the public and the Legislature, as described in the action items for this objective.

**Action Item 1.3.1:** Within five years after the adoption of this Plan, and every five years thereafter, conduct a technical analysis of the actions taken to determine the progress toward meeting the goals and objectives of the Plan



NeDNR and the NRDs must conduct a technical analysis of the actions taken to determine the process toward meeting the goals and objectives of the plan, as described in *Neb. Rev. Stat. § 46-755 (5)(d)* and under "Five-Year Technical Analysis" (page [#]).

**Action Item 1.3.2:** Evaluate progress toward each of the Plan's measurable hydrologic objectives at the intermediate dates specified in the Plan for each one



as specified for each MHO within the Plan Implementation Schedule

As required by *Neb. Rev. Stat. § 46-755 (5)(b)*, this Plan includes measurable hydrologic objectives (MHOs) to help assess whether reasonable progress has been made toward the Plan's goals and objectives. The Plan's MHOs are listed

within Table 4.1 in the "Plan Implementation Schedule" section (page [#]), along with the intermediate dates at which each will be evaluated and a description of the assessment that will be used to objectively evaluate progress toward each one. Evaluation of progress toward each MHO will take occur either annually or as part of each five-year technical analysis (Action Item 1.3.1), at the intervals indicated in Table 4.1. The results of these evaluations will be reported when NeDNR and the NRDs share the results of each five-year technical analysis with the public and the Legislature (Action Item 1.3.3), as described under "Evaluation of Progress" (page [#]).

**Action Item 1.3.3:** Following each five-year technical analysis (Action Item 1.3.1), share the results of the analysis and any recommended Plan modifications with the public



Following each five-year technical analysis, NeDNR and the NRDs will share the results of the analysis and any recommended Plan modifications at a public meeting (*Neb. Rev. Stat. § 46-755 (5)(d)*). Details about the public meeting to be held for this purpose can be found under "Annual Meeting" (page [#]).

If NeDNR and the NRDs recommend any Plan modifications as a result of this analysis, the procedures outlined under "Modifications to the Plan" (page [#]) will be followed.

**Action Item 1.3.4:** Following each five-year technical analysis (Action Item 1.3.1) and any resulting modifications to the Plan, submit a report to the Legislature of the results of the analysis and progress made under the Plan



Following each five-year technical analysis and any resulting modifications to the Plan, NeDNR and the NRDs will issue a report to the Legislature summarizing the results of the analysis and progress toward the goals and objectives of the Plan (*Neb. Rev. Stat. § 46-755 (5)(d)*). Details about the required report to the Legislature can be found under "Report to the Legislature" (page [#]).

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**Goal 2:** Maximize Nebraska's efficient and beneficial consumptive use of its portion of the water supply, increase certainty for long-range planning of water supplies to reduce the need for regulatory actions, and increase collaborative efforts among water management entities and stakeholders across the Basin

Goal 2 is comprised of three distinct but related ambitions: to maximize Nebraska's efficient and beneficial consumptive use of its portion of the water supply, to increase certainty about the availability of water supplies for long-range planning to reduce the need for regulatory actions, and to increase collaboration within the Basin. The first part, "maximize Nebraska's efficient and beneficial consumptive use of its portion of the water supply," gives overall direction and focus to efforts to increase certainty and collaboration. Increasing certainty to reduce the need for regulation and increasing collaborative efforts are also related, as described in the next three paragraphs. They provide some background information about regulatory actions for Compact compliance and how the regulatory burden of Compact compliance has at times contributed to conflicts among the basin's water users. In addition, many of the action items focused on maximizing efficient and beneficial use and increasing certainty involve collaborative efforts,

*Regulation for Compact compliance*

To comply with the terms of the Compact, Nebraska's water use must remain within its allocation over specified averaging periods, as described on page 4. To assist with ensuring long-term Compact compliance, certain ongoing regulatory controls have been established for both groundwater and surface water in the IMP for each NRD, including groundwater allocations, certification of irrigated acres, moratoriums on new wells and new surface water permits, and metering of all wells and surface water diversions in the Basin.

In years designated by the State as Compact Call Years, Nebraska must take additional action to meet its Compact obligations by either reducing consumption or generating additional streamflow. These potential actions can be regulatory or non-regulatory, and are outlined in the joint IMP for each NRD. For surface water, NeDNR may need to regulate and administer surface water in the Basin to ensure compliance. For groundwater, potential additional groundwater regulatory actions to ensure compliance for the Lower Republican, Middle Republican, and Upper Republican NRDs include establishing more restrictive, temporary allocations and curtailment of groundwater pumping within a designated portion of each NRD. The IMP for the Tri-Basin NRD also allows for additional regulatory actions as needed to maintain a hydrologically balanced condition (i.e., no net depletions to streamflow).

### *Uncertainty, conflict, and collaboration*

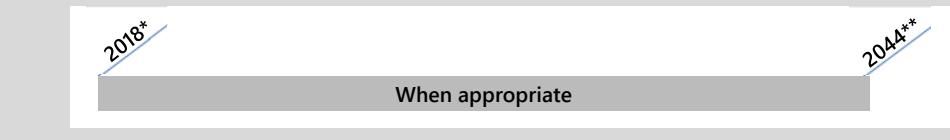
Stakeholders have expressed that the potential for regulation, as was carried out in 2013 to ensure Compact compliance, has contributed to a perceived lack of certainty in a given irrigation season among surface water users. In addition, for most of the history of regulation of water rights in Nebraska, state legislation considered surface water and groundwater separately without recognizing that they are hydrologically connected resources that impact one another (Appendix D, "Relevant History of Groundwater and Surface Water Management"). Together, these and other factors have contributed to a history of conflict between surface water and groundwater users in the Basin. This basin-wide planning process represents an opportunity to decrease conflict and increase collaboration among the Basin's water management entities and stakeholders, beginning with the exchange of ideas that has taken place at Stakeholder Advisory Committee meetings throughout Plan development and continuing through Plan implementation.

In the context of this goal's focus on increasing collaboration within the Basin, "water management entity" refers to any entity that makes independent decisions about water use within the Basin, and "stakeholder" refers to anyone with a water interest in the Basin. Therefore, collaborative efforts described in some of the objectives and action items under this goal might include, but are not limited to, the NRDs, NeDNR, irrigation districts, the Bureau of Reclamation, municipalities, and individual water users.

#### **Objective 2.1:** Understand the feasibility and potential impacts of Plan actions and establish a standard procedure for projects

This objective applies to all management actions taken in fulfillment of any of the Plan's action items. It establishes a mechanism for evaluating the feasibility and impacts of planned projects before carrying them out (Action Item 2.1.1), requires a summary of the previous years' evaluations within each Annual Report (Action Item 2.1.2), and sets forth a framework for implementing projects after a decision has been made to proceed (Action Items 2.1.3 and 2.1.4).

**Action Item 2.1.1:** For each planned new water management project in the Plan, evaluate hydrologic and regulatory feasibility and potential economic and environmental impacts



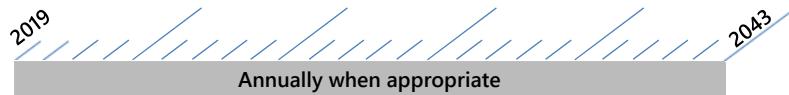
For each planned new water management project undertaken in fulfillment of any of the Plan's action items, the project proponent(s) will evaluate hydrologic and regulatory feasibility and potential economic and environmental impacts when deciding whether to move forward with a planned project.

If a previous evaluation or study of the feasibility and impacts of projects similar to a planned project already exists, the project proponent(s) will determine whether a new evaluation is necessary or the existing evaluation or study is sufficient.

As part of the evaluation of feasibility and impacts, the project proponent(s) will consider whether the project negatively impacts Nebraska's Compact compliance efforts and whether it adheres to applicable state laws, in accordance with Action Item 1.1.1.

As part of the evaluation for any potential interbasin transfer project (Action Item 2.2.2), any factors outlined in statute for the Director of Natural Resources' evaluation of interbasin transfer applications will be included in the evaluation of feasibility and impacts (as of the effective date of this plan, these factors are listed in *Neb. Rev. Stat. § 46-289*).

**Action Item 2.1.2:** For each project evaluated in accordance with Action Item 2.1.1 in a given year, include a summary of the evaluation in the annual report of that year's activities



If any projects were evaluated in a given year under Action Item 2.1.1, a summary of the results of the analyses of those projects will be included in the annual report of that year's activities. Additional information about the annual report can be found under "Reporting" (page [#]).

**Action Item 2.1.3:** For projects that are feasible and beneficial, apply for necessary permits, establish new or utilize existing infrastructure, then begin operations



For each planned new water management project undertaken in fulfillment of any of the Plan's action items, it is recommended that Action Item 2.1.1 be completed before Action Item 2.1.3; however, for some projects, circumstances may not allow adequate time for Action Item 2.1.1 to be completed before implementation of the project. In that situation, the project proponents will, at a minimum, report on and discuss the considerations outlined in Action Item 2.1.1 at the annual meeting, allowing time for questions from the public.

**Objective 2.2:** Improve the efficiency of use, availability, and reliability of water supplies for current irrigators

During Plan development, irrigators identified multiple challenges to water supplies, such as improving the efficiency of use, availability, and reliability of water supplies.

The prior appropriation system has always allowed for senior water rights to call out junior users when the available supply was not sufficient to meet the demands, and the water supply of the Basin varies considerably from year to year, so that historically a full supply has not always been available for all permitted surface water users. In addition, over recent decades, surface water users have faced the challenge of decreasing availability and reliability of surface water supplies. One cause of these decreases is groundwater pumping over time (Appendix A, "Local Hydrology"). There have been many other changes to the landscape that have also affected streamflow via reduced runoff<sup>1</sup>. The effects of conservation practices on streamflow will be studied during implementation of the Plan (Action Item 2.5.1).

For groundwater users, it can be difficult to know whether they will have sufficient water in dry years. Although groundwater is a more reliable and steady water source than surface water, groundwater users still depend on precipitation in addition to their groundwater allocations to fulfill the water needs of their crops. The action items associated with this objective focus on pursuing opportunities to improve efficiency of use, availability, and reliability of water supplies for both surface water and groundwater irrigators.

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<sup>1</sup>Republican River Compact Settlement Conservation Subcommittee for the Republican River Compact Administration (2014). *Republican River Basin: Impacts of Non-Federal Reservoirs and Land Terracing on Basin Water Supplies*. Final Report.

**Action Item 2.2.1:** Work with irrigation districts and individual groundwater and surface water irrigators to improve the efficiency of the Basin's surface water delivery systems and irrigation water use, when it is both feasible and beneficial to Nebraska's Compact accounting balance

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When appropriate

This action item is focused on partnering with others on projects to improve efficiency; specifically, NeDNR and the NRDs will work with irrigation districts to identify opportunities to improve the efficiency of the Basin's surface water delivery systems and with individual groundwater and surface water irrigators to improve irrigation water use efficiency. Such improvements will only be undertaken as part of implementation of this Plan if it is both feasible and beneficial to Nebraska's Compact accounting balance to do so.

Examples of the kinds of efforts of individual irrigators that NeDNR and the NRDs might support to increase efficiency and reliability of irrigation water use include, but are not limited to:

- Encouraging end gun removal and
- Incentivizing long-term reductions in water usage through increased efficiency.

Actions and opportunities related to this action item may be discussed by NeDNR and the NRDs as a group; however, decisions about which kinds of efficiency efforts to support within each NRD and how best to support them will remain within the existing authorities of NeDNR and each individual NRD.

**Action Item 2.2.2:** Participate in projects to improve the reliability, availability, and sustainability of water supplies in the Basin, which may include but are not limited to:

- a. Voluntary reduction of irrigated acres (temporary or permanent)
- b. Interbasin transfers
- c. Conjunctive management projects such as aquifer recharge or streamflow augmentation



This action item is focused on projects to improve the reliability, availability, and sustainability of water supplies in the Basin.

For these projects, NeDNR and the NRDs may work with partners such as the US Bureau of Reclamation, irrigation districts, or private landowners to identify, evaluate, and operate potential new projects, as appropriate. In some cases, these other entities might own and operate suitable existing infrastructure for conjunctive management projects. Examples of existing infrastructure that might be suitable for this purpose include wellfields, canals, reservoirs, or small dams and terraces. For conjunctive management projects that utilize existing infrastructure owned and operated by other entities, NeDNR and the NRDs will always first pursue voluntary cooperation with the partner who owns and operates the existing infrastructure.

Details about some specific types of projects that may be undertaken to improve the reliability, availability, and sustainability of water supplies in the Basin follow.

#### *Voluntary reduction of irrigated acres*

Reduction of irrigated acres may be temporary, such as through participation in CREP or other incentive programs, or permanent, such as through conservation easements or buyout programs. Landowner participation in programs to reduce irrigated acres will be voluntary.

When it is necessary to prioritize an area of focus for acreage reductions, it is recommended that the agency or agencies involved may consider factors such as:

- Soil type,
- Proximity to stream,
- Canal leakage,
- Groundwater declines, and
- Return flows.

#### *Interbasin transfers*

The idea of interbasin transfers, or diverting available water to the Republican Basin from other basins during periods of high flows, has garnered much support from stakeholders throughout the Plan development process. The most likely basin to serve as a suitable basin of origin for an interbasin transfer project would be the Upper Platte River Basin in Nebraska, but other basins within and outside the state have also been suggested at times during Stakeholder Advisory Committee meetings. Interbasin transfers would benefit the Republican Basin by bringing additional water into the Basin, and may also benefit the basin of origin (such as the Upper Platte Basin) by potentially reducing the impacts of flooding downstream of the diversion site.

#### *Conjunctive management*

Conjunctive management, or retiming water, refers to the combination of two categories of conjunctive management activities: storing water during periods when water is naturally abundant and using stored water during dry periods. Aquifer recharge and augmentation projects are listed within this action item as examples of potential conjunctive management projects and are discussed in further detail in the next several paragraphs. These are intended to be examples only; other types of conjunctive management activities are also permissible for fulfilling this objective.

Aquifer recharge projects fall within the category of conjunctive management activities related to storing excess water when it is available. Specifically, aquifer recharge projects encourage infiltration to recharge the underlying aquifer by holding surface water in infrastructure such as canals, reservoirs, or terraces. Aquifer recharge projects undertaken to fulfill this action item include creating new infrastructure for the purposes of recharge, utilizing existing infrastructure for this purpose, or improving existing infrastructure to enhance its recharge capabilities.

Large reservoirs and canals that existed within the Basin during Plan development are shown in Figures A.4 and A.10.

In contrast to aquifer recharge projects, streamflow augmentation projects fall within the category of conjunctive management activities related to using stored water during dry periods. Specifically, augmentation projects involve enhancing streamflow by supplementing it with water from other sources, such as with groundwater pumped from an aquifer. The following three specific types of potential augmentation projects are described in more detail below:

- Augmentation to comply with the Compact and IMPs,
- Augmentation to provide a more reliable supply to surface water users, and
- Supplementation of existing surface water users' supplies with new groundwater wells.

#### *Augmentation to comply with the Compact and IMPs*

Augmentation projects that exist in the Basin during development of this Plan include N-CORPE, Rock Creek Augmentation Project, and the Turkey Creek Augmentation Project (Figure [x]). The Basin's current augmentation projects are intended to augment streamflow for the purposes of meeting Nebraska's Compact obligations and complying with the IMPs. Augmentation activities undertaken to fulfill this action item may make use of these existing augmentation facilities or may involve identifying and developing new potential augmentation projects.

#### *Augmentation to provide a more reliable supply to surface water users*

Groundwater irrigation is generally a more reliable source of water than surface water irrigation, because the aquifer is sheltered from the variations in weather and climate that cause surface water supplies to vary widely, both within a season and from year to year. In addition, surface water irrigators have experienced a decline in surface water availability over time (Figure E.2). During the Plan development process, stakeholders expressed concern that this decline, coupled with the natural variability and uncertainty of surface water supplies, has made it difficult for surface water users to plan in recent years.

Should one or more augmentation projects be proposed to increase surface water supplies for surface water users, NeDNR and the NRDs will determine the feasibility. In assessing proposed augmentation projects, NeDNR and the NRDs will seek input from surface water irrigation districts and surface water users. Based on

the results of this feasibility study, the project proponent(s) may decide to move forward with one or more new augmentation projects for this purpose.

*Supplementation of existing surface water users' supplies with new groundwater wells*

Another option for increasing the reliability of surface water supplies would be to allow supplementation of existing surface water users' supplies with new groundwater wells. Some surface water-only acres are located in areas where it would be feasible to convert them to commingled acres if they were allowed to drill new wells and obtain new groundwater permits; however, there are currently moratoriums on new wells in most of the Basin. Because of this, allowing these surface water users to drill wells would require a variance. Any decisions about whether to grant a variance for this purpose would be made on a case-by-case basis and would take into account the impact on Nebraska's overall Compact Accounting balance. If any new depletions result from use of the new wells, they will be offset following the procedures outlined in the IMPs, in accordance with Action Item 1.1.2.

As noted above, aquifer recharge and augmentation are listed as examples of potential conjunctive management projects, not as an exhaustive list. Other types of conjunctive management projects may also be considered.

**Objective 2.3:** Provide opportunities for collaboration among the Basin's water users

This objective includes two opportunities for increasing collaboration for the Basin's water users: opportunities for discussion and information exchange at an annual public meeting (Action Item 2.3.1) and collaboration to address conflicts between water users that result from implementation of this Plan (Action Item 2.3.2).

Please note that in addition to the opportunities for collaboration outlined in the action items associated with Objective 2.3, many of the Plan's other objectives and action Items also contain opportunities for collaboration among the Basin's water users.

**Action Item 2.3.1:** Hold an annual public meeting to discuss Plan implementation and exchange information about the Basin



Information about the annual meeting can be found under "Annual Meeting" (page [#]).

**Action Item 2.3.2:** Work cooperatively to investigate and address conflicts between water users resulting from implementation of this Plan by following the procedures for addressing conflicts that are outlined in this Plan



Conflicts between water users resulting from implementation of this Plan will be investigated and addressed following the "Procedures for Addressing Conflicts Resulting from Implementation of the Republican River Basin-Wide Plan" (Appendix E).

**Objective 2.4:** Promote conservation programs available to the water users in the Basin

NeDNR and the NRDs will collaborate to evaluate and promote existing and new water conservation programs related to the use of integrated water resources. These are programs that provide incentives to encourage voluntary modification by water users for the purposes of water conservation. Incentive programs may include, but are not limited to, federal programs or any program authorized by state law. Some examples of this are programs that incentivize irrigated acreage reduction or best management practices.

The IMPs for all four NRDs already include guidelines for the establishment and implementation of incentive programs to reduce beneficial consumptive use of water within each NRD. This objective does not replace the existing incentive program guidelines

contained in the four IMPs, nor does it require that all four NRDs implement exactly the same incentive programs.

**Action Item 2.4.1:** Work together to identify, investigate, and discuss existing and potential new water conservation programs



NeDNR and the NRDs will exchange information about and evaluate existing and potential new water conservation programs available to water users in the Basin. At a minimum, this will occur at annual meetings. NeDNR and the NRDs may also discuss water conservation programs between annual meetings, for example, as new opportunities are identified or as deadlines approach for a specific program.

Evaluation of each conservation program opportunity should include consideration of whether and how that conservation program might help advance progress towards the goals and objectives of this Plan.

For each conservation program opportunity that NeDNR and the NRDs agree might help advance progress towards the goals and objectives of this Plan, NeDNR and the NRDs should discuss whether to collaborate to promote such a program to water users, as described under Action Item 2.4.2.

Implementation and administration of conservation programs will remain the responsibility of individual NRDs and NeDNR, following existing guidelines found in each joint IMP.

**Action Item 2.4.2:** Collaborate to promote conservation program opportunities to the Basin's water users



If NeDNR and the NRDs agree that a specific conservation program opportunity might help advance progress towards the goals and objectives of this Plan (Action Item 2.4.1), NeDNR and the NRDs may determine that the program should be collaboratively promoted to users.

Potential opportunities for collaboration on the promotion of conservation programs include, but are not limited to:

- Collaborative development of educational materials about the program, such as written materials or presentations,
- Sharing or joint development of implementation tools such as forms or databases, or
- Joint applications for funding to support and promote conservation program opportunities.

**Objective 2.5:** Understand how various water management activities of independent decision-makers affect water supplies

NeDNR and the NRDs will improve their understanding of how various water management activities of independent decision-makers affect water supplies, as described in the following action items. Independent decision-makers in this context include any water management entities in the Basin other than NeDNR and the NRDs, such as producers, irrigation districts, municipalities, and other government agencies.

**Action Item 2.5.1:** Study the effects of conservation practices on streamflow, if feasible



NeDNR and the NRDs will study the effects of various agricultural conservation practices on streamflow, if and when enough funds and staff resources are available to make it feasible to do so. This includes, but is not limited to, an examination of how changes in conservation practices may have contributed to reduced runoff, as indicated in the description of Objective 2.2. The results of and recommendations based on the results of any such study will be shared with producers in the Basin. NeDNR and the NRDs may also use the results of this kind of study to inform discussion and promotion of conservation incentive programs (Objective 2.4).

**Action Item 2.5.2:** Periodically analyze the future impacts to streamflow of past pumping to determine the lag time of these residual impacts



Streamflow depletions due to groundwater pumping are not immediate. The amount of time it takes for the effects of pumping to be realized in a stream depend on factors such as the distance of the well from the stream and the ease through which water can flow through the materials in the aquifer. Similarly, streamflow depletions due to groundwater pumping continue long after pumping has stopped.

To fulfill this action item, NeDNR will use groundwater modeling to analyze future impacts of past groundwater pumping (i.e., the residual effects) by running a simulation to answer the question, "if groundwater pumping in the Basin were to stop completely, how long would it take the aquifer to recover?" This question explains what is meant in the action item language by "determine the lag time of these residual impacts."

**Action Item 2.5.3:** Examine and attempt to estimate the quantity of all inputs and outputs affecting the water supply balance in a small watershed, and consider using the results of this pilot study to create water use and land use guidelines for producers and other land managers, incentivize participation in recommended practices, and determine the value of completing similar studies across the Basin



The purpose of this action item is first, to gain a better understanding of the potential benefits of using a complete water balance approach as a water management tool, and second, to support future management actions with the knowledge gained.

NeDNR and the NRDs will initiate a multi-year pilot study involving a water balance approach and groundwater/surface water modeling, with the purpose of examining and attempting to estimate the quantity of all inputs and outputs affecting the water supply balance in a watershed. The intent is to complete this evaluation within 10 years of this plan taking effect, provided that sufficient funding and staff resources are available to do so.

Examples of study objectives include, but are not limited to:

- Verification of precipitation and evapotranspiration,
- Verification of consumptive use in riparian areas, canals, dams, and of other water uses,
- Measurement of the impact of crop residue with the goal of improving residue management approaches, and
- Collection of data that will be useful as the basis of an educational program for landowners to help them understand the impact they can have through water balance management.

The results of this study will be considered in the creation of water use and land use guidelines to educate producers and other land managers about the water management lessons learned from the pilot study. NeDNR and the NRDs will determine in which of the water management actions recommended by the study

results to encourage participation and how best to encourage those actions. Incentive programs are one option for encouraging participation.

In addition, based on the results of the initial study, NeDNR and the NRDs will make a recommendation regarding whether it would be valuable to conduct a similar study or studies in other locations across the Basin.

This action item is based on an idea proposed by a stakeholder during Plan development. This action item addresses the intent of the stakeholder's proposed study, but the methodology used to undertake this action item may differ from the originally proposed methodology, at the discretion of NeDNR and the NRDs. The original proposal is included for reference as Appendix F.

**Objective 2.6:** Evaluate the feasibility and potential outcomes of establishing water markets in the Basin

A water market is an economic platform for temporary or permanent trades of the rights to use water, where the price of water is determined by variable economic and market conditions. During Plan development, stakeholders were enthusiastic about the idea of trying a water market in the Basin for the purposes of exchanging water among groundwater and surface water users. Much is still unknown about the logistics, feasibility, and desirability of such water markets in the Basin; therefore, the purposes of this objective are to conduct a study and possibly initiate a pilot program to evaluate the feasibility and potential outcomes of establishing a water market or water markets within the Basin.

Nothing about this objective or its listed action items precludes NRDs or other entities from pursuing water markets in the Basin outside of this planning process.

This objective and its associate action items are based on an idea proposed by a stakeholder during Plan development. NeDNR, the NRDs, and the stakeholder who proposed the idea continued to discuss the idea during a coordination meeting, and this objective and action items resulted from that discussion. A summary of the discussion is included for reference as Appendix G.

**Action Item 2.6.1:** Cooperate in determining the feasibility of water markets in the Basin

2018\*  
2023  
By 2023

This action item would include studying existing water markets, as well as working cooperatively with the US Bureau of Reclamation, water users, and irrigation districts, to evaluate the feasibility of water markets for surface water and groundwater users in the Basin. This feasibility analysis will include such considerations as:

- Compact compliance obligations
- Program costs,
- Regulatory framework, and
- Water user interest.

The intent is to complete this evaluation within five years of this plan taking effect and to report on findings from the evaluation as part of the first five-year technical review, provided that sufficient funding and staff resources are available to do so.

If the conclusions from these efforts indicate that water markets in the Basin would be feasible, then NeDNR and the NRDs may choose to proceed with testing their conclusions in a pilot area (Action Item 2.6.2).

**Action Item 2.6.2:** Following the water markets feasibility analysis (Action Item 2.6.1), test conclusions through implementation of a water market program in a pilot area, if feasible



If the evaluation in Action Item 2.6.1 indicates that water markets in the Basin would be feasible, and if sufficient funding and staff resources are available to do so, then NeDNR and the NRDs will work cooperatively with the US Bureau of Reclamation, the Basin's irrigation districts, and water users in the Basin to conduct a water market pilot program within a portion of the Basin within the first 10 years of Plan implementation. The group of water users involved in developing a pilot program should be representative of water users in the pilot area, to the extent possible.

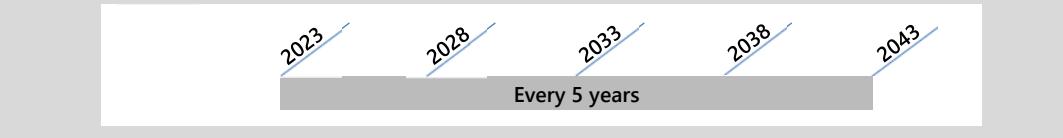
Factors to consider when determining the framework of the pilot program include, but are not limited to:

- The eligible geographic area
- Whether transfers of water rights from one subbasin to another will be allowed, and
- How stream depletion factors will affect transfers.

**Objective 2.7:** Support the NRDs in management of allocations for irrigation purposes and surface water irrigation districts in management of the allotment of their water supply

The Plan provides a framework to support the NRDs in management of allocations for irrigation purposes and surface water irrigation districts in management of the allotment of their water supply by periodically evaluating the groundwater allocation and surface water allotment systems as described in Action Item 2.7.1.

**Action Item 2.7.1:** Periodically evaluate, as part of each five-year technical review, the impact of the groundwater allocation and surface water allotment systems as a whole



As part of each five-year technical review, NeDNR and the NRDs will evaluate the impact of the groundwater allocation and surface water allotment systems as a whole. A synopsis of the current allocation system is provided in Appendix H.

**Action Item 2.7.2:** As needed, based on the evaluation described in Objective 2.7.1, recommend changes or improvements to the groundwater allocation and/or surface water allotment systems

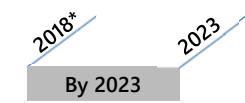


Based on the evaluation described in Objective 2.7.1, NeDNR and the NRDs will determine whether to recommend changes or improvements to the groundwater allocation and surface water allotment systems. Whether or not to adopt the recommended changes or improvements remains within the authorities of each individual NRD or irrigation district.

### **Objective 2.8:** Conserve water for future use during a drought

This objective relates to balancing storage water to maximize use in the long-term by conserving water when it is abundant so that it is available during times of scarcity.

**Action Item 2.8.1:** Organize and participate in a basin-wide drought planning exercise



NeDNR and the NRDs will organize and participate in a drought planning exercise for the Basin. A drought planning exercise is a workshop or other activity that brings together parties with expertise in various aspects of droughts to plan and prepare for managing drought. Some areas of focus for this exercise will be:

- Increasing understanding of the needs for and logistics of storing water for use during a drought,
- Evaluating existing and potential new management actions to determine the long-term availability trends that provide carry-over storage to meet crop-water needs during drought, and
- Developing metrics that could be used to evaluate whether conservation of water for future use during a drought is successful.

This exercise will support the evaluation of whether Plan revisions related to conserving water for a drought are needed (Action Item 2.8.2).

**Action Item 2.8.2:** Following the drought planning exercise (Objective 2.8.1) evaluate whether to recommend any changes to the IMPs or this Plan related to conservation of water for future use during a drought

2019                    2024  
By the year following completion of 2.8.1

One outcome of the drought planning exercise will be to improve understanding of how this Plan or the IMPs might be able to be used as tools to help conserve water for future use during a drought. Following that exercise, NeDNR and the NRDs will evaluate whether to make any related changes to any of these plans. Some examples of the kinds of changes that could be made to this Plan include changes that would:

- Clarify how water will be conserved,
- Set specific targets for water storage, or
- Specify how to assess and measure conservation of water for future use.

**Goal 3:** Positive public relations, including information sharing, within and outside the Basin

Goal 3 and its associated objectives and action items are focused on promoting positive public relations by improving information sharing about the Basin's water supplies and use as well as management efforts of the Basin's water users and managers, with both outside decision-makers and the Basin's water users.

**Objective 3.1:** Improve information sharing with decision-makers and the public about solutions formed within the Basin

The overarching focus of this objective is sharing information about the Basin's water management solutions, and the challenges those solutions are intended to address, with people who are not directly involved in developing or implementing those solutions. Sharing information with the Basin's water users is addressed separately in Objective 3.2. Part of Objective 3.1 is to improve information sharing about the Basin's water management solutions with decision-makers, especially those outside the Basin. This is because during Plan development, the Stakeholder Advisory Committee expressed concern that Legislators, the Governor's Office, and other decision-makers were unaware of many of the achievements, efforts, and overall progress that water users and managers in the Basin have already made toward addressing the Basin's water management challenges. Sharing information about implementation efforts with the general public is also part of Objective 3.1. The following action items provide details about how Objective 3.1 will be achieved.

**Action Item 3.1.1:** Use existing resources to share information about Basin progress and activities with outside entities



This action item specifies that outreach about Basin progress and activities will be undertaken using existing resources. Some examples of existing resources include NeDNR and the NRDs' staff, websites, and other outreach or education mechanisms.

**Action Item 3.1.2:** Educate civic leaders and the public on implementation efforts within the Basin

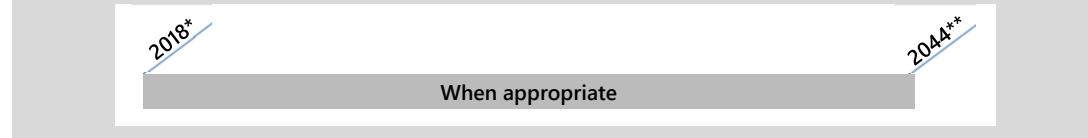


This action item clarifies that the "outside entities" mentioned in Action Item 3.1.1 include both civic leaders and the public. Some examples of civic leaders include the Legislature, the Governor's Office, and municipal leadership.

Some examples of potential topics for public relations campaigns or education about implementation efforts within the Basin and the challenges those solutions are intended to address are:

- Efficiency improvements,
- The NRDs' allocations systems and resulting successes,
- Other management activities and successes,
- Factors that have contributed to streamflow reduction in the Basin,
- Variations in groundwater management that reflect natural wet/dry cycles, and
- Realistic expectations for outcomes of projects and policy changes.

**Action Item 3.1.3:** Educate civic leaders and the public about the policies and institutional infrastructure that contribute to the development and implementation of solutions



Policies and institutional infrastructure have contributed and will continue contribute to the development and implementation of water management solutions for Nebraska and this Basin. During Plan development, stakeholders expressed concern that civic leaders and the public may not be aware of what those policies and institutional infrastructure are, how they can contribute to effective water management, or how they differ from those of other states. Therefore, as part of plan implementation, efforts will be made to educate civic leaders and the public about how existing and new policies and institutional infrastructure contribute to the development and implementation of water management solutions for the Basin.

Examples of the types of policies and institutional infrastructure that could be addressed in outreach efforts include, but are not limited to:

- The NRD system,
- Correlative groundwater rights,
- Integrated Management Plans,
- The Republican River Basin-Wide Plan,
- The Republican River Compact,
- Other aspects of Nebraska's surface water and groundwater statutes, or
- Other NRD rules, regulations, and plans.

**Action Item 3.1.4:** Propose and support changes to laws, policies, and rules that would incentivize reduced water consumption

2018\*

2044\*\*

When appropriate

If NeDNR and the NRDs identify potential changes to federal or state laws, policies, or rules that would incentivize reduced water consumption, they will propose and support those changes, such as through communication with state or federal lawmakers (including Nebraska's federal delegation), policymakers, or rulemaking agencies. In addition, when appropriate, they will educate potential partner states, agencies, and organizations about their recommendations and seek their assistance in promoting the recommended changes.

A specific example proposed by a stakeholder during Plan development is to promote changes to the Farm Bill that would either incentivize farmers to either plant lower consumptive use crops or to fallow acres if doing so would reduce consumption. NeDNR and the NRDs will continue to examine and consider this proposal to better understand what specific changes can be made to the Farm Bill to incentivize reduced water consumption.

Some examples of methods to consider that might incentivize lower consumptive use crops include, but are not limited to:

- Amending the Federal Crop Insurance program to increase the Actual Production History (APH) on lower consumptive use crops on both dry and irrigated acres, as a way to lower the income risk of growing crops that will decrease water consumption, or
- Offering a higher crop insurance subsidy for crops that have a lower consumptive use, either through the Federal Crop Insurance Program or through other conservation programs, or
- Establishing an APH of lower consumptive use crops that currently lack an APH.

**Objective 3.2:** Improve information sharing with water users who are reliant on the Basin's water supplies

Whereas Objective 3.1 is focused on sharing information with outside entities, Objective 3.2 is about sharing information internally, with the Basin's water users. The action items associated with Objective 3.2 describe multiple specific ways that information sharing within the Basin will be improved.

**Action Item 3.2.1:** Share data and information related to the Republican River Compact with the public in an easily accessible, user-friendly format



NeDNR and the NRDs already gather and share a considerable amount of data and information about Nebraska's water supplies and uses in the Basin with the states of Kansas and Colorado as part of the Republican River Compact Association's (RRCA's) annual data exchange process for the purposes of RRCA accounting. These data are currently available on the RRCA website; however, they are not easy to find and are not very user-friendly for users outside the RRCA. In accordance with Action Item 3.2.1, data and information related to the Compact will be shared with the public in a user-friendly format in an easily accessible, centralized location. Specific categories of RRCA data to be shared are listed under "Reporting" (page [#]).

**Action Item 3.2.2:** Annually prepare and exchange reports containing data and information about water supplies and uses in the Basin, and make these reports publically accessible



As specified in 2.3.1, NeDNR and the NRDs will hold an annual public meeting to discuss Plan implementation and exchange information about the Basin, as described under "Annual Meetings" (page [#]). For this meeting, NeDNR and the NRDs will exchange reports containing data and information about water supplies and uses in the Basin, management activities, and progress towards the goals, objectives, and action items of this Plan, as described under "Reporting" (page [#]). Following the annual meeting, the reports exchanged will be made available to the public.

**Action Item 3.2.3:** Regularly communicate with the Plan's Stakeholder Advisory Committee about implementation progress and potential Plan revisions



Action Item 3.2.3 specifies that after this Plan goes into effect, NeDNR and the NRDs will continue to communicate with the Plan's Stakeholder Advisory Committee on a regular basis about Plan implementation progress and any potential revisions to the Plan. NeDNR and the NRDs will:

- Invite members of the Stakeholder Advisory Committee to each annual meeting and five-year technical review meeting,
- Notify members of the Stakeholder Advisory Committee of potential plan revisions, and
- Notify members of the Stakeholder Advisory Committee when annual reports, five-year technical reviews, or other new reports related to implementation of this plan are published.

It is the responsibility of members who wish to receive these updates to keep their contact information current by notifying NeDNR or their NRD of changes.

Additional information about meetings, reports, and the plan-revision process can be found in the "Monitoring" section of the Plan (page [#]). Members of the Stakeholder Advisory Committee are listed in Appendix C, "Plan Development."

**Action Item 3.2.4:** Encourage and support water users to share information about their management practice improvements with other water users and the public



Throughout implementation of this Plan, NeDNR and the NRDs will encourage and support water users to share information about their management practice improvements with other water users and the public. Various methods of implementation of this action item may be employed to fit specific circumstances. Examples of opportunities for individuals to share their successes with other water users include, but are not limited to:

- Articles for NeDNR or NRD newsletters, websites, or social media,
- Presentations or reports shared at the annual meeting to review implementation of this Plan,
- Presentations at annual water user conferences or other outreach events, or
- Coverage by external news media.

NeDNR and the NRDs will discuss opportunities to implement this action item at each annual meeting.

**Goal 4:** When possible, pursue projects that not only benefit water supplies and uses, but also create benefits for fish, wildlife, recreation, and conveyance within the Republican River Basin

During the development of this Plan, stakeholders expressed that it was important to them that this Plan provide benefits to fish, wildlife, recreation, and conveyance within the Basin. While these potential areas of benefit do not directly relate to integrated management of the Basin's water supplies and uses, there are likely to be opportunities for projects that can benefit fish, wildlife, or recreation while also benefiting water supplies and uses according to the Plan's other goals and their associated objectives and action items. The objectives and action items that fall under Goal 4 outline ways in which projects to manage water supplies and uses can provide additional benefits to the Basin's fish, wildlife, conveyance, and recreation.

It is important to note that for any action taken in fulfillment of any objective or action item under Goal 4 to benefit fish, wildlife, recreation, or conveyance, the action must also benefit water supplies and uses in fulfillment of one or more of the Plan's other goals, objectives, or action items. Actions that only benefit fish, wildlife, recreation, or conveyance without also benefiting hydrologically connected water supplies fall outside of the statutory authority of this Plan.

**Objective 4.1:** Where feasible and beneficial, protect and enhance fish and wildlife habitat and public outdoor recreational opportunities

NeDNR and the NRDs will pursue opportunities to protect and enhance wildlife habitat and outdoor recreation opportunities, if it is feasible and beneficial do so as part of projects that also benefit water supply and use. Further details are given in the action items below.

**Action Item 4.1.1:** Partner with wildlife-focused organizations on projects that benefit the organizations' habitat and wildlife interests while also helping to fulfill other goals of this Plan

2018\*

2044\*\*

When appropriate

If it is feasible and beneficial to do so as part of actions taken to benefit water supply and use in fulfillment of this Plan's other goals, NeDNR and the NRDs will partner with wildlife-focused organizations on projects that benefit wildlife and their habitat. Some examples of wildlife and habitat-focused groups operating in Nebraska include:

- The Nebraska Game and Parks Commission,
- The US Fish and Wildlife Service,
- Ducks Unlimited,
- Audubon Nebraska,
- The Nature Conservancy, and
- The Crane Trust.

The level of involvement of partner organizations may vary according to the needs and circumstances of each individual project, ranging from, for example, consultation on questions related to their area of expertise, to collaboration on project planning and design, to sharing project costs for projects that benefit the groups' wildlife and habitat-related interests.

Projects undertaken to fulfill this objective may involve establishing new or utilizing existing infrastructure. One example of a type of project that could benefit both the Basin's water supplies and wildlife habitat would be to use water diverted through an interbasin transfer project during periods of high flows to enhance wildlife habitat.

**Action Item 4.1.2:** Promote public recreation on the river, when doing so can also help to fulfill other goals of this Plan



If it is feasible and beneficial to do so as part of actions taken to benefit water supply and use in fulfillment of this Plan's other goals, NeDNR and the NRDs will promote public recreation on the river. Some examples of public recreation include recreational floating such as tubing, kayaking, and canoeing.

For promotion of public recreation, it may be beneficial for NeDNR and the NRDs to partner with organizations with an interest in public recreation, such as the Nebraska Game and Parks Commission or local river outfitters.

**Action Item 4.1.3:** Cooperate in projects to assess and restore riparian wetlands while also helping to fulfill other goals of this Plan



Riparian wetlands are wetlands located adjacent to streams, rivers, or lakes. NeDNR and the NRDs will participate in projects to assess and restore riparian wetlands if it is feasible and beneficial to do so as part of actions taken to benefit water supply and use in fulfillment of this Plan's other goals and objectives, such as for aquifer recharge (Objective 2.2.2) As appropriate, they will do so in cooperation with organizations with interest and expertise in wetland restoration. Because of the wide-range of benefits wetlands provide, such as groundwater recharge, wildlife habitat, flood control, and water quality, the primary focus of potential partner organizations for mutually beneficial wetland assessment and restoration projects also varies widely.

Action Item 4.1.3 includes two parts: wetland assessment and wetland restoration. Wetland assessment involves evaluating wetland condition and function. This may be done for many purposes, such as:

- To identify and inventory existing wetlands,
- To compare and prioritize wetlands for development and mitigation purposes, or
- To establish a baseline condition and then monitor changes in condition and function over time.

Wetland restoration involves rehabilitating the hydrology, plants, and soils of a degraded wetland or reestablishing a wetland that has been destroyed.

**Objective 4.2:** Where feasible and beneficial, reduce the effects of undesirable vegetation on water conveyance

NeDNR and the NRDs will pursue opportunities to reduce the effects of undesirable vegetation on water conveyance, if it is feasible and beneficial do to so as part of projects that also benefit water supply and use. Conveyance is the transport of water from one location to another. Further details are given in the action item below.

**Action Item 4.2.1:** Cooperate in removing undesirable vegetation impacting water conveyance and managing reinfestation



NeDNR and the NRDs will participate in projects to remove undesirable vegetation impacting water conveyance, if it is feasible and beneficial to do so as part of actions taken to benefit water supply and use in fulfillment of this Plan's other goals.

A summary providing background information about the relationship between removal of invasive vegetation and evapotranspiration is included as Appendix I. This information should be taken to consideration when considering projects involving riparian vegetation removal and management.