

2026 Forecast of Allowable Depletions in the Republican River Basin

Nebraska Department of Water, Energy, and Environment
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Background

The State of Nebraska is party to an interstate compact for the management of the Republican River Basin with the states of Colorado and Kansas, administered by the Republican River Compact Administration (RRCA). Pursuant to the current integrated management plans (IMPs) and Neb. Rev. Stat. § 46-715(6), the Nebraska Department of Water, Energy, and Environment (Department) in consultation with the Lower Republican Natural Resources District, Middle Republican Natural Resources District, and Upper Republican Natural Resources District (Districts) is required to provide an annual short-term and long-term forecast of maximum allowable depletions to streamflow that will ensure compliance with interstate compacts. The Department has determined that the short-term forecast applies to the upcoming year (2026) and that the long-term forecast estimates what conditions may be ten years into the future. Therefore, this document includes the dry-year forecast of allowable depletions to streamflow in 2026 and 2036.

The States of Nebraska, Colorado, and Kansas, acting through the RRCA, adopted a *"Resolution Approving Long-Term Agreements Related to the Operation of Harlan County Lake for Compact Call Years"* (Resolution). The August 24, 2016, Resolution outlines certain actions that Nebraska will take toward Republican River Compact (Compact) compliance during years forecast as Compact Call Years as outlined in the Monitoring and Studies Technical Memorandum sections of the District IMPs. Compliance with the terms of the Resolution constitutes compliance with the Final Settlement Stipulation and Compact.

Short-Term Forecast

The outcome of Nebraska's short-term forecast is largely dependent on three key elements, much of which are from data secured through the RRCA Compact accounting procedures. These three elements are detailed in the following sections.

1. Applicable compliance tests for 2026

The first key element of the short-term forecast is the identification of the averaging period that will be utilized for assessing compliance for the upcoming year. The compliance tests use five-year averaging upstream of Hardy in every year and may also include an additional test based on two-year averaging upstream of Guide Rock. The averaging period and applicable accounting points are determined based on projections of the total irrigation water supplies available to the Nebraska Bostwick Irrigation District and Kansas Bostwick Irrigation District. The current projection is that 2026 will require the use of five-year averaging to measure Nebraska's Compact compliance upstream of Hardy and the additional test of two-year averaging upstream of Guide Rock.

2. Previous year balances

The second key element in the short-term forecast is an evaluation of the recent Compact accounting balances for the State of Nebraska as determined using the current RRCA accounting procedures. These procedures allow for the determination of Nebraska's Compact balance for years through the current year (2025). Nebraska's Compact balances through 2024 have been approved and finalized by the RRCA. The 2025 balances are provisional. The information used to estimate the 2025 Compact balances is presented in Table 1. Nebraska's 2021-2024 RRCA-approved balances and 2025 provisional balances upstream of Guide Rock and Hardy and Compact Compliance Volume (CCV, as credit to Nebraska's 2025 balances) are presented in Table 2. Remaining Compact Compliance Volume resulting from 2025 compliance are shown from the CCV and management actions provided to the Kansas Account in Table 3.

Table 1. Information Used (acre-feet) for 2025 provisional Accounting.

Item	Information Source
Groundwater Use	Prior years' pumping records
Surface Water Use	Estimated from preliminary data and prior years' values
Streamflow	Provisional records, end-of-year estimates
Evaporation	Prior years' records, provisional, end-of-year estimates

Table 2. Nebraska's 2021-2024 RRCA-approved balances and 2025 provisional balances upstream of Guide Rock and Hardy.

Year	RRCA Status	Upstream of Guide Rock Balance*	Upstream of Hardy Balance
2021	Approved	-	27,000
2022	Approved	-	-11,900
2023	Approved	-	-17,900
2024	Approved	-15,900	-16,000
2025	Nebraska Provisional	15,900	21,400
2025 Compact Compliance Volume		41,000	
2024-2025 Balance		0	-
2021-2025 Balance		-	2,600

* The 2024-2025 balance for upstream of Guide Rock applies to 2025 and represents Compact Compliance Volume (CCV).

Note: Values are rounded to the nearest one hundred acre-feet. 2025 values are provisional and have not been approved by the RRCA.

Table 3. Remaining Compact Compliance Volume at the end of 2025 after 2025

management actions provided to the Kansas Account in Harlan County Lake.

2025 Compact Compliance Volume (CCV)	41,000
2025 Management Actions provided to Kansas Account	3,450
RCCV from 2025*	37,550

Note: Values are rounded to the nearest fifty acre-feet. The 2024 and 2025 values are based on RRCA accounting procedures at the Guide Rock location. 2025 values are not finalized by the RRCA.

*RCCV includes the yield from management actions Nebraska will take in 2026 to comply with Kansas's 2025 request.

3. Forecast of available water supplies and consumption for 2026

The third key element is the forecast of available water supplies and consumption within Nebraska for the upcoming year. To carry out this forecast, the Department uses a simplified method of estimating the streamflow-related available water supply of the Republican River Basin for Nebraska's use. The water supply forecast is based on eight key variables:

- Surface water consumptive use in Colorado,
- Surface water consumptive use in Kansas,
- Surface water consumptive use in Nebraska,
- Groundwater consumptive use in Colorado,
- Groundwater consumptive use in Kansas,
- Groundwater consumptive use in Nebraska,
- Nebraska's Imported Water Supply Credit, and
- Surface water flow at the Kansas – Nebraska state line.

These eight variables may be estimated for the next year:

- Surface water consumption in Colorado is estimated using a two-year average;
- Surface water consumption in Kansas is related to the water available for irrigation in Harlan County Lake at the end of each year;
- Surface water consumption in Nebraska is related to water available for irrigation in the five Bureau of Reclamation project reservoirs in Nebraska at the start of each year;
- Groundwater consumption and the Imported Water Supply Credit are estimated in all three states using a two-year average; and
- Streamflow is estimated assuming that the upcoming year is a dry year and is based on the volume of water in Harlan County Lake and the most recent five years of streamflow.

Historically, Nebraska's share of the available water supply has been approximately half of the total water supply calculated using these methods. The information used to estimate the forecast of the available water supply and allowable depletions for 2026 are summarized in Table 4.

Table 4. Information Used (acre-feet) for 2026 Forecast of Allowable Depletions.

Year	Item	Information Source
2026 Forecast		Average of 2024 and 2025

	Groundwater Consumptive Use and Imported Water Supply Credit	
	Surface Water Consumptive Use	Colorado: Previous two-year average of $T - 1$ and $T - 2$ SwCBCU _{co} Kansas: $+ (.1858 \times \text{HCL content}) + 9,575$ Nebraska: $- (0.0000004) \times (\text{NE lake volume})^2 + (0.52) \times (\text{NE lake volume}) - 42,000$
	Streamflow	$0.41 + (\text{5-year average of previous years' Stateline Streamflow}) + 0.23 \times \text{HCL content} - 27,450$

Utilizing the data sources outlined in Table 4, the required components of the forecast can be calculated (Table 5).

Table 5. 2026 Forecast values in acre-feet, where GWCBCU is defined as groundwater computed beneficial consumptive use and SWCBCU is defined as surface water computed beneficial consumptive use.

Forecast Component	Forecast Value Upstream of Guide Rock	Forecast Value Upstream of Hardy
Colorado GWCBCU	35,800	35,800
Kansas GWCBCU	15,000	15,000
Nebraska GWCBCU	194,200	197,000
Nebraska Imported Water Supply Credit	18,300	18,300
Colorado SWCBCU	100	100
Kansas SWCBCU	44,900	44,900
Nebraska SWCBCU	74,200	75,000
Streamflow	55,600	69,600

Note: Values are rounded to the nearest one hundred acre-feet.

The 2026 Compact balances – of allocations (available water supply), computed beneficial consumptive use (CBCU, groundwater and surface water consumption), and Imported Water Supply Credit – are calculated from the forecast procedures contained in the Monitoring and Studies Technical Memorandum Section of the IMPs (Table 6).

Table 6. Forecast 2026 Allocations (available water supply), Computed Beneficial Consumptive Use (CBCU, groundwater and surface water consumption), Imported Water Supply Credit, and Compact Balances for Guide Rock and Hardy in acre-feet.

Year	Allocation	Computed Beneficial Consumptive Use	Imported Water Supply Credit	Allocation - CBCU + IWS Credit (Balance)
2026 Forecast upstream of Guide Rock	209,900	268,400	18,300	-40,200
2026 Forecast upstream of Hardy	218,700	272,000	18,300	-35,100

Note: Values are rounded to the nearest one hundred acre-feet.

Combining the results from the three key elements (applicable compliance test for 2026, previous years' balances, and forecast of available water supplies and consumption for 2026), Nebraska's 2022-2026 five-year total balance upstream of Hardy is forecast to be -59,500 acre-feet; the additional two-year test upstream of Guide Rock will be applicable and is projected to be a 2025-2026 total balance of -24,300 acre-feet (Table 7).

Table 7. 2022-2024 approved Compact balance total upstream of Hardy, 2025 provisional balances upstream of Guide Rock and Hardy, and 2026 forecast balances upstream of Guide Rock and Hardy in acre-feet.

Year	Upstream of Guide Rock Balance*	Upstream of Hardy Balance
2022-2024 total, approved	-	-45,800
2025, provisional	15,900	21,400
2026, forecast	-40,200	-35,100
Two-year (2025-2026) Total	-24,300	-
Five-year (2022-2026) Total	-	-59,500
RCCV**	37,600	

* Balances for upstream of Guide Rock are included and are applicable for 2025 compliance.

Note: Values are rounded to the nearest one hundred acre-feet. 2025 values are preliminary and have not been approved by the RRCA.

** RCCV includes the yield from management actions Nebraska will take in 2026 to comply with Kansas's 2025 request.

Compact Call Year Evaluation

The Monitoring and Studies Technical Memorandum of the District IMPs specifies the process that will be completed by the Department to determine a Compact Call Year. The process of determining if the following year will be a Compact Call Year is completed in two evaluations: one evaluation for the 5-year Hardy balances and one for the 2-year Guide Rock balances. Both evaluations must be completed each year, as shown in Figure 1.

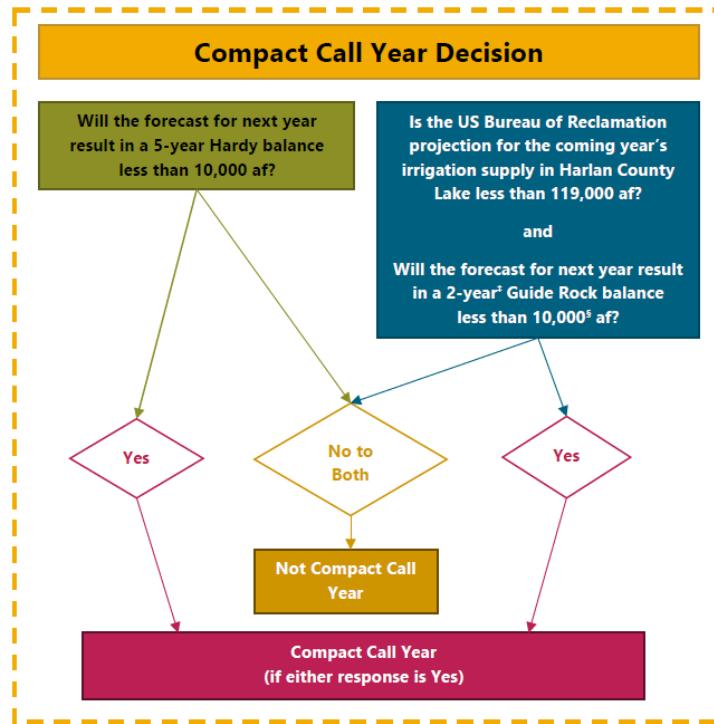


Figure 1. The Compact Call Year decision framework for the Republican River Basin consists of two evaluations: one evaluation for the 5-year Hardy balances and one for the 2-year Guide Rock balances.

⁸Note: Due to 2026 being the fourth consecutive compact call year, the Guide Rock balance threshold has been reduced from 10,000 acre-feet to 0 acre-feet.

The forecast for 2026 resulted in a 5-year Hardy balance of -59,500 acre-feet. In a letter dated December 17, 2025, the US Bureau of Reclamation projected the 2026 irrigation supply in Harlan County Lake would be 73,900 acre-feet, and the forecast results in a 2-year Guide Rock balance of -24,300 acre-feet. Based on review of the IMP evaluations with the information presented in this document, a Compact Call Year designation is required for 2026.

Review of Resolution Provisions

Pursuant to the Resolution, the Compact Compliance Volume (CCV) applied to Nebraska's balances for 2025 is 41,022 acre-feet. On September 30, 2025, the State of Kansas requested a portion of the 2025 CCV be delivered to the Kansas Account in Harlan County Lake no later than June 1, 2026, to ensure the Kansas Account reaches a volume to 57,000 acre-feet. Nebraska has provided 3,450 acre-feet of this volume in 2025 and will provide the remainder in 2026. Because the exact amount of water needed for the Kansas Account to reach 57,000 acre-feet no later than June 1, 2026, is not known at this time, the yield from all management actions expected to be taken in 2026 are included as RCCV in this forecast. Nebraska will provide updates to Kansas on compliance actions taken in 2026 to meet the request.

Nebraska will evaluate the actual hydrologic conditions on a regular basis to estimate the CCV for 2026. The first update to this estimate will be provided no later than May 10, 2026, and will be updated each month thereafter. Nebraska will finalize the 2026 CCV no later than December 31, 2026.

Subject to the Compact Call Year designation and the terms of the Resolution, Kansas may request portions of RCCV or CCV for 2026 be made available in the Kansas Account prior to June 1, 2027. Kansas must finalize their request prior to October 1, 2026.

Review of Integrated Management Plan Provisions

Due to the Compact Call Year designation for 2026, the Department will provide the Districts with an estimate of how much yield from potential management actions may be needed within the year. A summary of the Districts' provisional 2025-2026 Guide Rock balances and 2022-2026 Hardy balances and previous years' obligations (RCCV from 2025) are provided in Tables 8 and 9, respectively. In this forecast, RCCV includes the volume of water Nebraska will supply in 2026 to fulfill Kansas's 2025 request.

Table 8. Summary of Guide Rock Balances for each District within the Basin in acre-feet.

Year	LRNRD	MRNRD	URNRD
2025 Provisional	7,700	3,000	5,200
2026 Forecast	-12,000	-12,500	-15,700
Two-Year Total	-4,300	-9,500	-10,500
RCCV*	15,100	7,000	15,500

Note: Values are rounded to the nearest one hundred. The 2025 values are based on current RRCA accounting procedures at the Guide Rock location. 2025 values are not finalized by the RRCA. 2026 Forecast values are computed at the Guide Rock location. The provisional 2025 balances for each District reflect the management actions taken in 2025.

*RCCV includes the yield from management actions the Districts will take in 2026 to comply with Kansas's 2025 request.

Table 9. Summary of Hardy Balances for each District within the Basin in acre-feet.

Year	LRNRD	MRNRD	URNRD
2022-2024 Final	-24,800	-3,400	-17,600
2025 Provisional	8,100	5,200	8,100
2026 Forecast	-11,700	-10,500	-12,900
Five-Year Total	-28,400	-8,700	-22,400
RCCV*	15,100	7,000	15,500

Note: Values are rounded to the nearest one hundred. The 2025 values are based on current RRCA accounting procedures at the Hardy location. 2025 values are not finalized by the RRCA. 2026 Forecast values are computed at the Hardy location. The provisional 2025 balances for each District reflect the management actions taken in 2025.

*RCCV includes yield from management actions the Districts will take in 2026 to comply with Kansas's 2025 request.

In Compact Call Years, the Department will implement additional surface water controls. The Department will issue an order designating 2026 as a Compact Call Year and carry out the necessary administration of natural flow and storage surface water appropriations within the basin consistent with NRD management actions and Compact requirements. The Department will coordinate with the Districts to provide updated water supply projections throughout 2026 and inform the Districts if Kansas requests Compact Compliance Volume in the fall of 2026.

Summary of the Short-Term Forecast for 2026

Nebraska's 2026 compliance will be measured by the five-year average upstream of Hardy which is projected to be less than 10,000 acre-feet positive, and the additional two-year test upstream of Guide Rock will be applicable and is projected to be less than 0 acre-feet. The Districts are projected to have Compact Call Year obligations for 2026 up to the volumes outlined in Table 10. These volumes include the yield from management actions that the Districts will undertake prior to June 1, 2026, to fulfill Kansas's request. By January 31, 2026, each District will inform the Department of the management actions they intend to take to ensure compliance, and then the Department will evaluate whether the planned management actions are sufficient to ensure compliance, as described in the IMPs.

Table 10. Forecast of potential management actions for each District to comply with IMP requirements.

Year	LRNRD	MRNRD	URNRD
Potential Management Actions required for IMP compliance	43,500	16,500	37,900

Long-Term Forecast

Due to the absence of a long-term trend in water supply, the periods of low water supplies in the future are likely to be similar to periods of low water supplies from the past. Historically, the minimum water supplies that have been available to Nebraska were approximately 200,000 acre-feet. Therefore, the amount of water that may be available from streamflow for beneficial use ten years in the future (2036), assuming several consecutive dry years, is estimated to be approximately 200,000 acre-feet. In an effort to continue to ensure long-term Compact compliance through future dry years, the Compliance Standards in the IMPs outline objectives to maintain groundwater depletions at a relatively constant level over the long-term. The Department and Districts will continue to evaluate the trends in long-term groundwater depletions over typical wet and dry cycles and jointly assess whether additional management actions are necessary to accomplish this objective.