

DNR Methods Used for Historical Consumptive Use Calculations

For determining historical consumptive use of irrigated acres that require only the consumptive use be transferred, the Department of Natural Resources will rely on the following procedures.

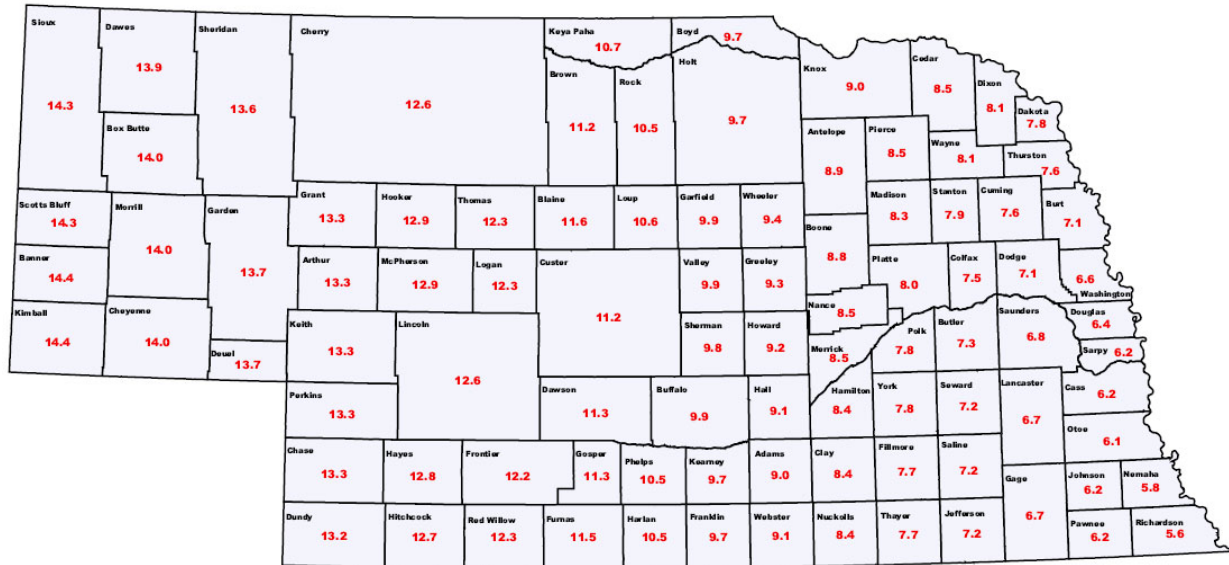


Figure 1. Net Corn Crop Irrigation Requirement (NCCIR) by County – NDNR May 2006

For each county in Nebraska, the map indicates the average inches per acre that have been determined as the consumptive use of corn, assuming a well-watered, fully irrigated crop. The [map](#) is also provided on the Department’s web site. This map serves as the basis for the Department’s determination of consumptive use on any transfer filed that requires only the consumptive use portion be transferred, unless the applicant chooses to submit valid information specific to the lands from which the appropriation is to be transferred. If the applicant chooses to submit such information, the information shall be reviewed by Department staff for verification of the validity of the information.

The following procedures outline the methods the Department will utilize in calculating the transferable historical annual and daily consumptive use:

Step 1 - Calculation of Maximum Annual Consumptive Use (MACU)

If the applicant does not supply valid information specific to the transfer tract, Department staff will utilize the net corn crop irrigation requirement (NCCIR) map to determine the inches per acre for the transfer tract. If the tract overlaps multiple county boundaries, the value for the county containing the most acres proposed to be transferred will be utilized. Once the NCCIR has been determined for the transfer tract, the NCCIR will be multiplied times the number of acres being transferred and divided by 12 inches to determine the number of acre-feet that are subject to transfer.

$$(\text{inches per acre (NCCIR)} \times \text{acres}) / 12 = \text{maximum annual consumptive use (MACU) in acre-feet.}$$

If the applicant does supply valid information specific to the transfer land tract, such information will be utilized by the Department to determine the MACU. The determination of the validity of consumptive use computations provided by the applicant is at the sole discretion of Department staff.

Step 2 - Adjustments to the MACU (not applicable to all transfers)

A) Tract is served by two or more natural flow appropriations

Evaluation of Multiple Natural Flow Appropriations

In those situations where the water right being transferred is located on a tract that has multiple surface water appropriations, for example where there are two or more natural flow appropriations stacked on top of each other, a determination of the proportion of use of the individual water right being transferred will be required. This determination shall be based upon the proportionate amount of the grant for the individual water right being transferred. The proportionate amount will be multiplied times the MACU (calculated in Step 1) to determine the adjusted MACU.

Example:

Assume that a 70 acre tract has three natural flow water rights stacked on top of each other, one for 0.35 cfs, one for 0.50 cfs and one for 0.05 cfs. The 0.35 cfs is the water appropriation being transferred from the entire 70 acres. To perform the calculation multiply 0.39 ($0.35/(0.35+0.50+0.05)$) times the MACU calculated in Step 1 above to determine the adjusted MACU.

B) Tract is served by a Natural Flow Appropriation and Storage Use Appropriation

Evaluation of Tracts Served by Natural Flow and Storage Appropriations

For situations where there is a natural flow and storage use appropriation(s) on the same tract, the same process will be used to determine the MACU (see Step 1). The Department will determine, through consultation with the appropriator (and irrigation district if applicable) during the field investigation, an estimate of the percent of water diverted under each appropriation during the last ten years. Examples of such information may include: PWAP (Platte Water Accounting Program) data, reservoir releases, storage deliveries, etc. This proportion will be multiplied by the MACU (calculated in Step 1) to determine the adjusted MACU.

C) Tract is served by a Natural Flow Appropriation and Groundwater

Evaluation of Tracts served by Natural Flow Appropriation and Groundwater

For tracts that are served by a natural flow appropriation and a groundwater well, the Department will consult with the applicant and the appropriate Natural Resources District to estimate the percent of water provided from the surface water appropriation being transferred and the ground water well. The proportion of historical consumptive use provided by the natural flow appropriation will be multiplied by the MACU (calculated in Step 1) to determine the adjusted MACU.

D) Tract is served by a natural flow appropriation, storage use appropriation, and groundwater

Evaluation of Tracts Served by Natural Flow Appropriation, Storage Use Appropriation, and Groundwater

For tracts that are served by a natural flow appropriation, storage use appropriation, and a groundwater well, the Department will consult with the applicant, irrigation district, and the appropriate Natural

Resources District to estimate the percent of water provided from the surface water appropriation being transferred, the storage use appropriation, and the ground water well. The proportion of historical consumptive use provided by the natural flow appropriation will be multiplied by the MACU (calculated in Step 1) to determine the adjusted MACU.

Step 3 – Calculation of transferred instantaneous rate (TIR)

A) Irrigation to Instream-Use Transfers

Calculation of Potential Historical Maximum Daily Consumptive Use

This calculation is only required for transfers from irrigation to instream-use. Once the MACU (if the tract is only served by a single natural flow appropriation) or adjusted MACU (all other cases described above) has been calculated, the transferred instantaneous rate (TIR) will be determined. The TIR sets a maximum allowable value of cubic feet per second of water that can be protected in the stream. The following method is only applicable to transfers where no diversion of the transferred amount will not occur. The Department will determine the TIR by assuming that irrigation use occurs between June 1 and August 31, in the following proportions:

- June 20% of MACU
- July 40% of MACU
- August 40% of MACU

Example:

MACU = 100 acre-feet

June TIR = 20 acre-feet/30 days = 0.67 acre-feet/day/1.984 = 0.34 cfs
July TIR = 40 acre-feet/31 days = 1.29 acre-feet/day/1.984 = 0.65 cfs
August TIR = 40 acre-feet/31 days = 1.29 acre-feet/day/1.984 = 0.65 cfs

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B) Irrigation to Irrigation Transfers

Calculation of Potential Historical Maximum Daily Consumptive Use

1. Expedited Transfer: the transferred instantaneous rate of diversion per acre and the grant per acre will remain the same as the original appropriation.
2. Non-expedited transfer: the transferred instantaneous rate of diversion will remain the same and only the annual volume (MACU) and/or acre-feet / acre limit will be changed.
 - A. Non-expedited transfers involving the change of location for irrigated acres will not require a reduction in the transferable amount of water if the following are met:
 - i. the number of acres will not increase after the transfer and
 - ii. the location of the diversion from the stream will not change.
 - B. For a non-expedited transfer from irrigation to irrigation not meeting the above requirements the Department will compute the acre-feet per acre annual limit in the following manner:

$$(\text{MACU} \times \text{proposed acres}) / \text{original acres} = \text{Annual Acre-Feet} / \text{Acre Limit}$$

If applicable, this will be used as the total annual volume per acre that may be diverted if the transfer is approved. Step 3 – Calculation of transferred instantaneous rate (TIR) (cont.)