

MAY 6, 2026



DATA CENTER WATER USAGE

Reice Haase – Director, North Dakota Department of Water Resources

NORTH
Dakota | Water Resources
Be Legendary.

DWR FUNCTIONS & RESPONSIBILITIES

STATUTORY REQUIREMENTS

Allocation Of The State's Waters

Atmospheric Resources & Meteorology

Cost-Share Funding

Dam Safety

Drainage & Construction Permits

Drought Livestock Program

Floodplain Management

Sovereign Land Management

Water Project Development

SUPPORT FUNCTIONS

Data Collections

Education & Outreach

Map & Data Services

Technical Review & Response

Transboundary Watershed Management

PRIOR APPROPRIATION DOCTRINE



Western Water Law

First In Time,
First In Right



Junior
Appropriators
Can Not
Unduly Affect
Senior
Appropriators



First User
Of Water
Acquires
Priority
For The
**Use Of That
Water**



WATER APPROPRIATION

WATER APPROPRIATION

To Administer & Enforce Water Laws,
Rules & Policies That Assure Sustainable
Water Resource Management & Protect
Established Water Rights Of Applicants.

DWR Is Charged With
Managing The Use Of The
State's Waters As Directed
Under N.D.C.C. Ch. 61-04
& N.D.A.C. Art. 89-03.



WATER PERMIT APPLICATION PROCESSES

1

Application
Submission

2

Public
Notification

3

Public
Comment
Period

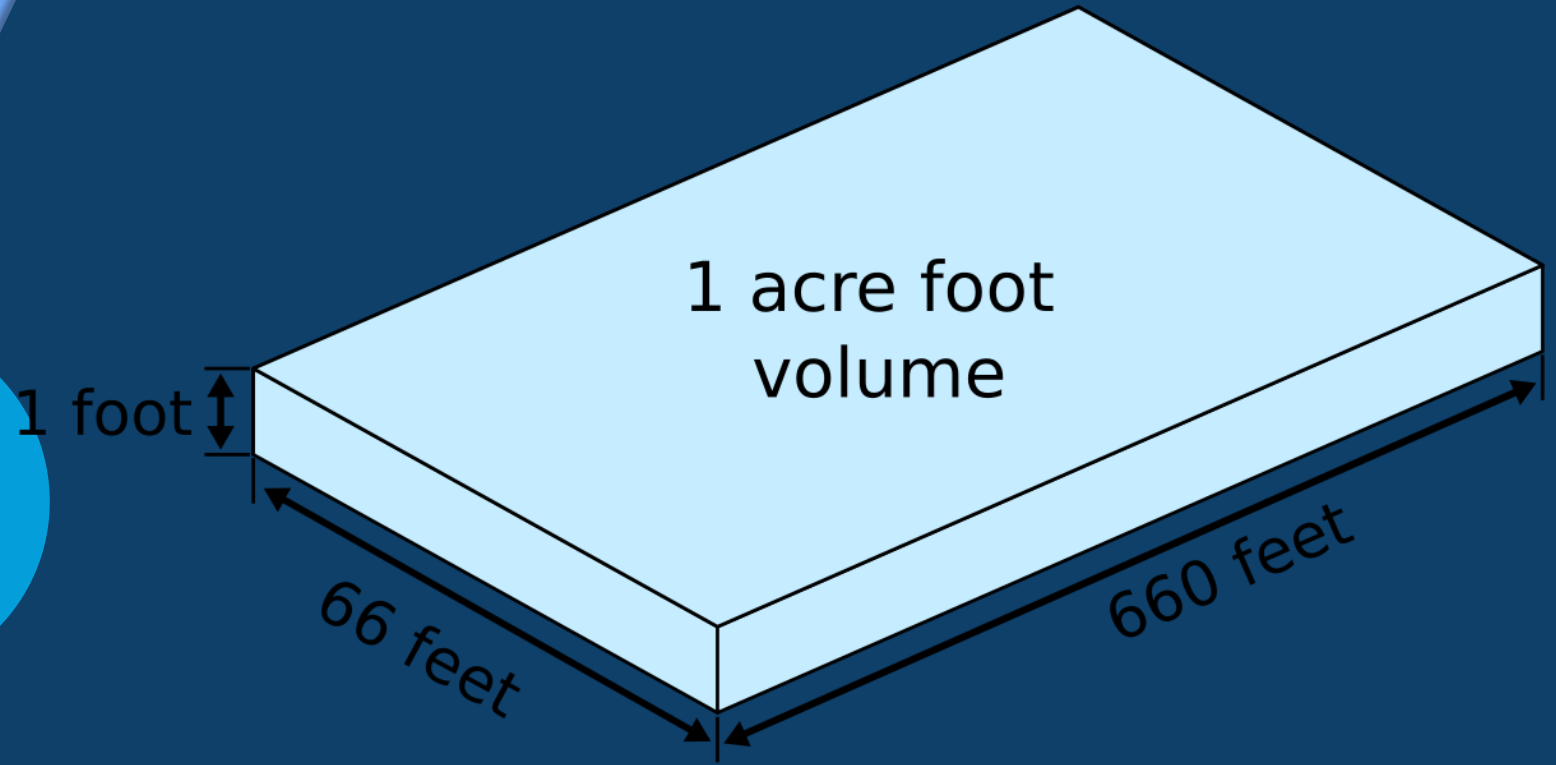
WATER PERMIT APPLICATION REVIEW PROCESS

1 Applications Are Reviewed In Order Of Priority From System

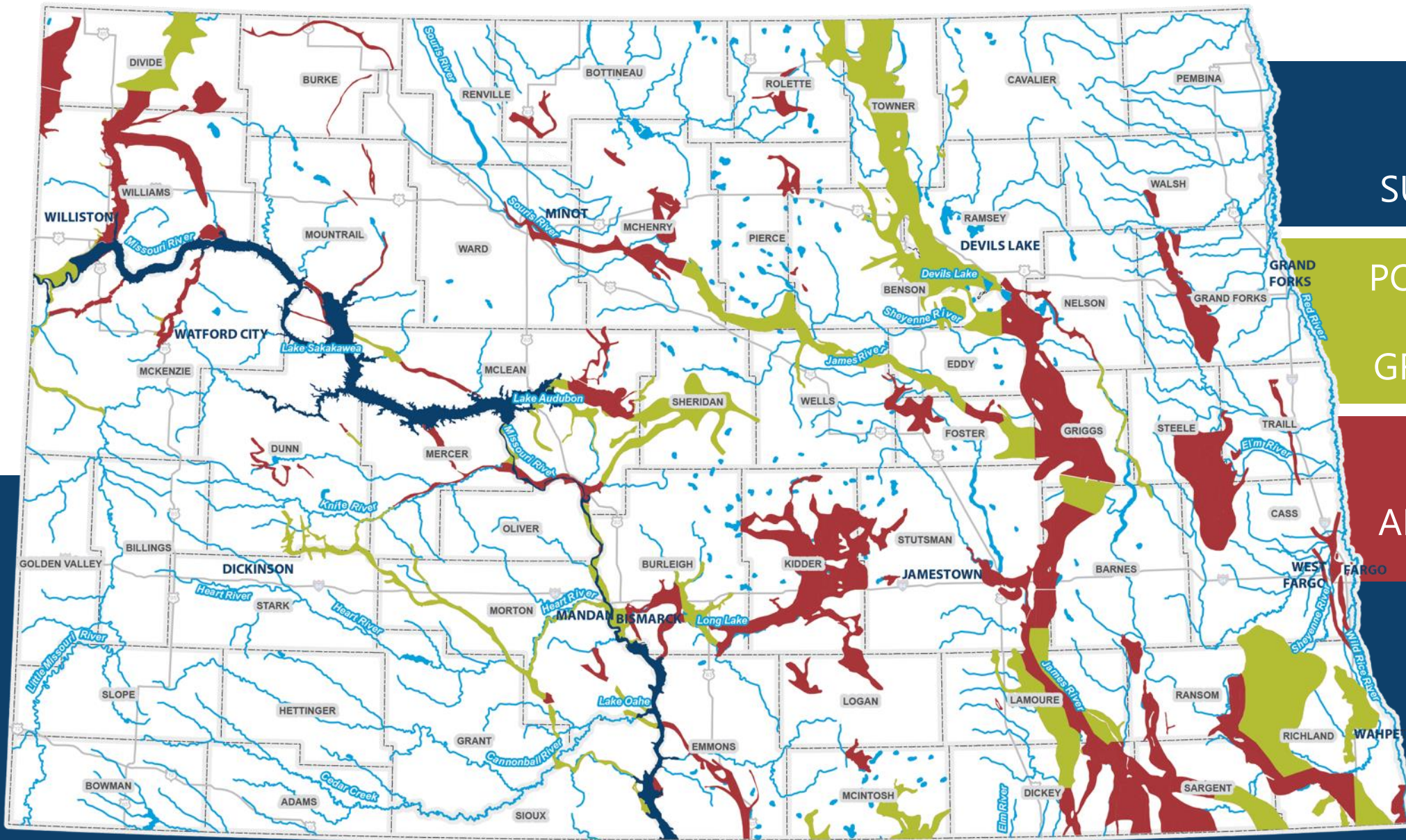
2 Criteria To Issue Permit (N.D.C.C. § 61-04-06)

- Rights Of A Prior Appropriator Will Not Be Unduly Affected
- Proposed Means Of Diversion Or Construction Are Adequate
- Proposed Use Of Water Is Beneficial
- Proposed Appropriation Is In The Public Interest

3 Application **Approved** (All Or Portion), **Denied**, Or **Deferred**



1 ACRE-FOOT =
325,851 GALLONS



GOOD WITH
LIMITATIONS /
SURFACE WATER

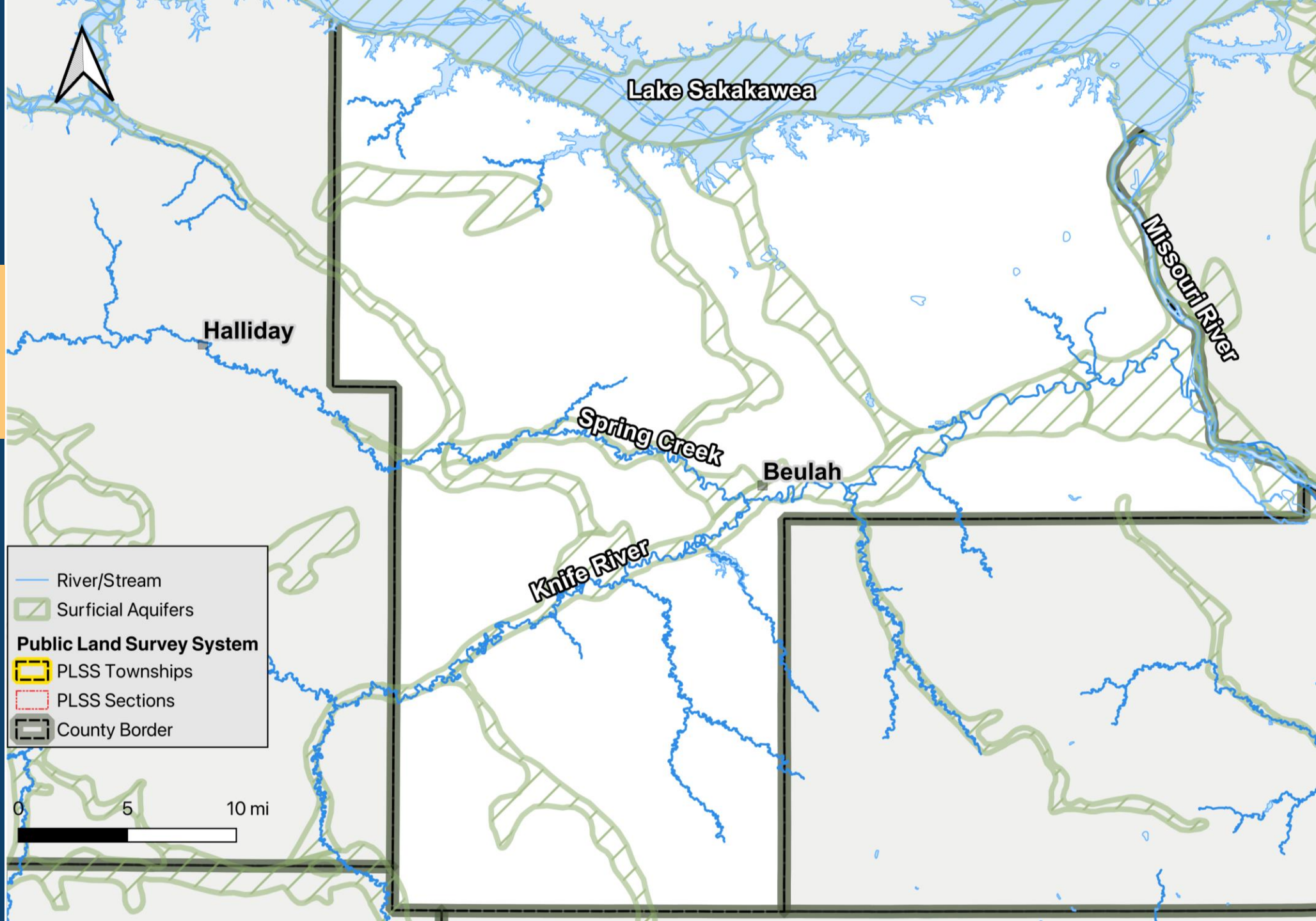
POTENTIAL WITH
LIMITATIONS /
GROUND WATER

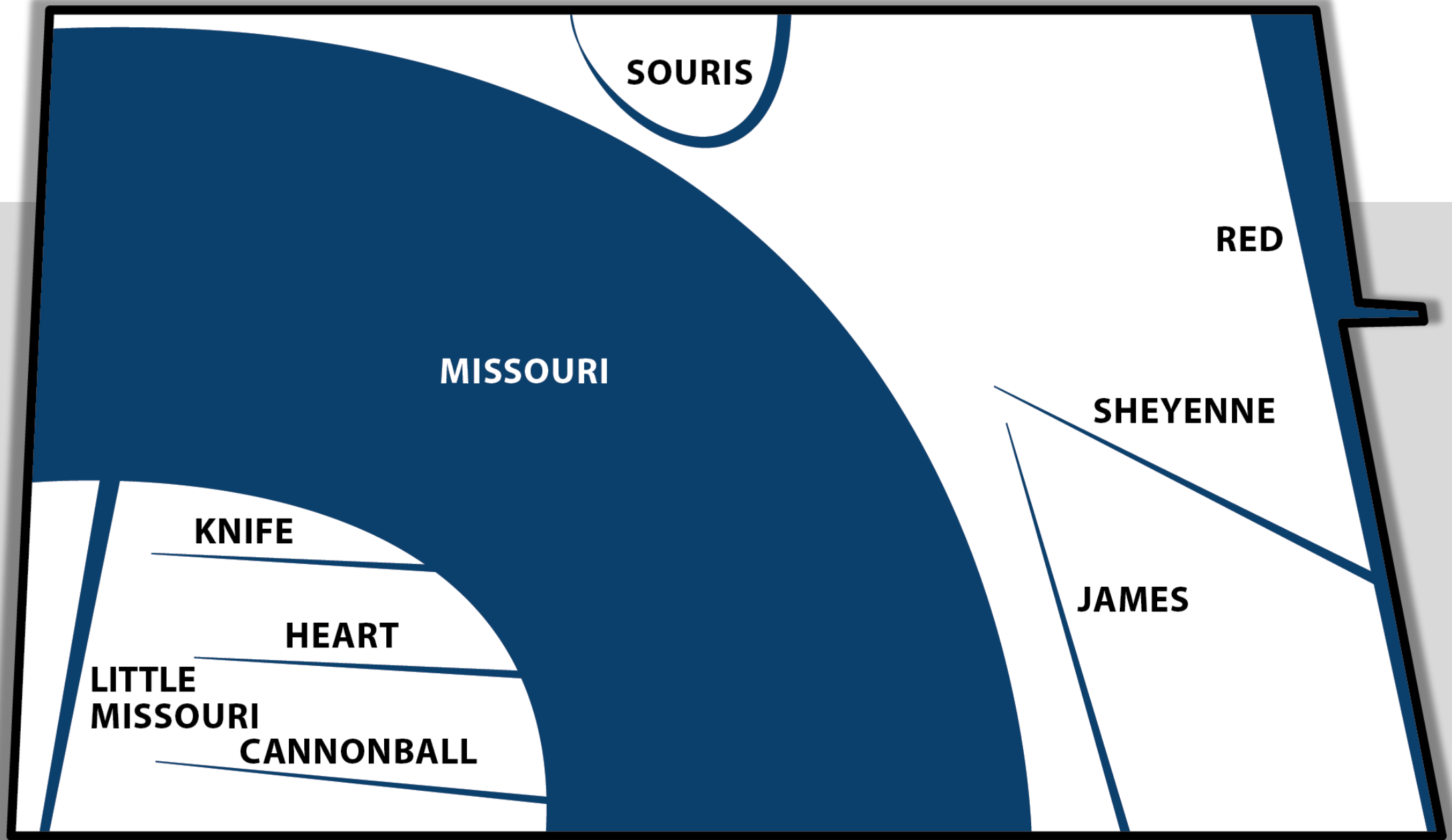
NEAR FULL
APPROPRIATION

GROUNDWATER AVAILABILITY POTENTIAL

MERCER COUNTY

Ground & Surface Water





RELATIVE RIVER FLOWS

CONSUMPTIVE VS NON-CONSUMPTIVE USE

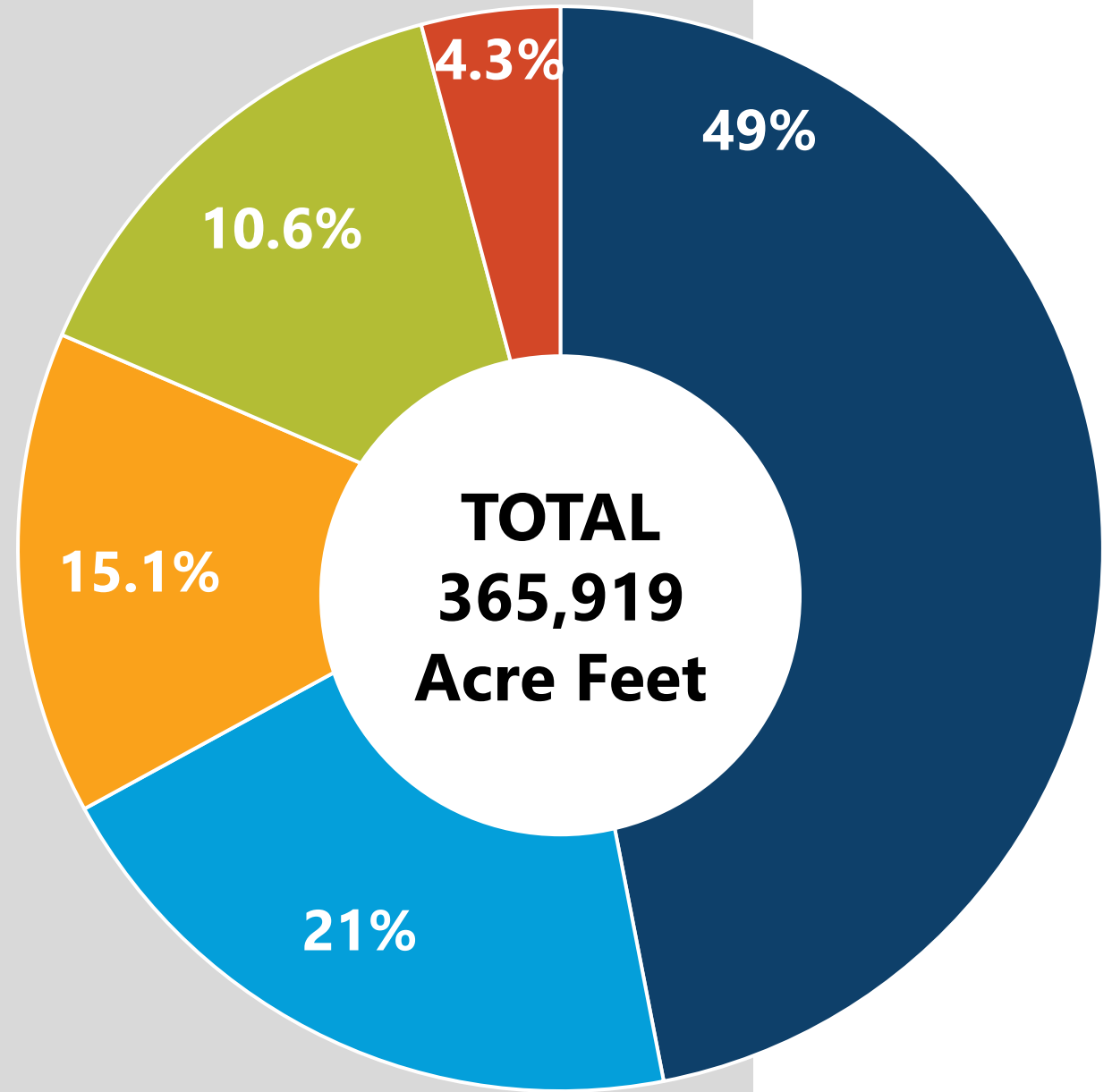
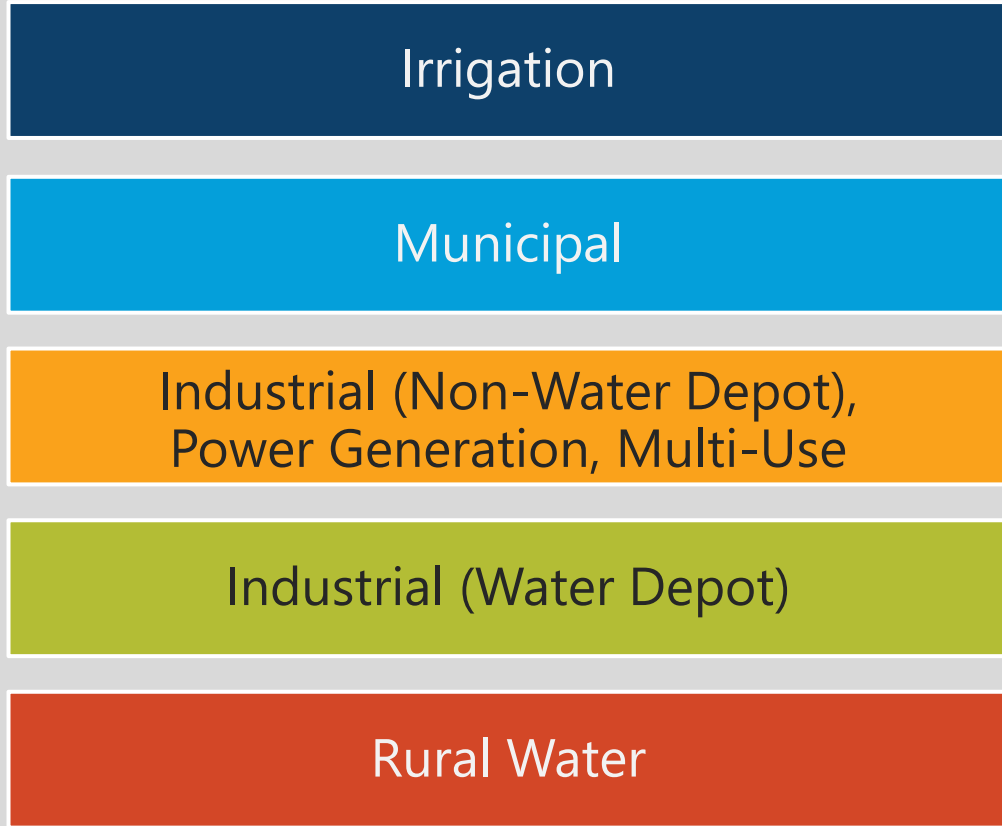
CONSUMPTIVE

Water That Is
Withdrawn & Will
Not Be Available
For Immediate
Or Future Reuse

NON-CONSUMPTIVE

Water That Is Diverted &
Returned To The Source,
Composition Has Not Been
Substantially Altered &
Returned To The Source
From Which It Was
Withdrawn In A Relatively
Short Period Of Time

AVERAGE ANNUAL WATER USE



DATA CENTER WATER USAGE STATS

Average Use Per Facility Is Variable

Closed-Loop System Ranges
~**5.6AF - 112AF**
Per Year

Use Per MWh Average Year

Water Cooled
0.28 – 1.56
AF/MWh

Air Cooled
0.11 – 0.21
AF/MWh

30 Minutes Of AI Use

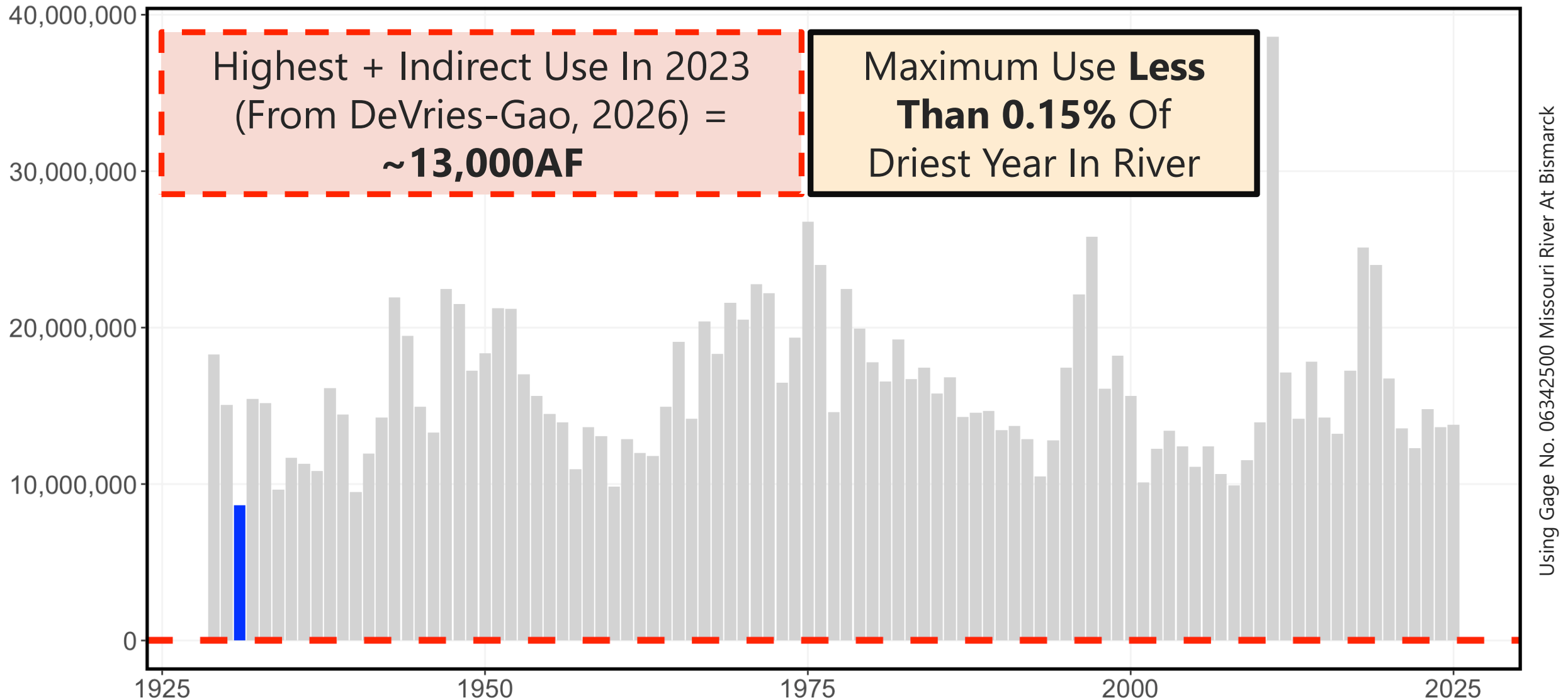
2.6 Cups
Water Used

Non-Consumptive
91%

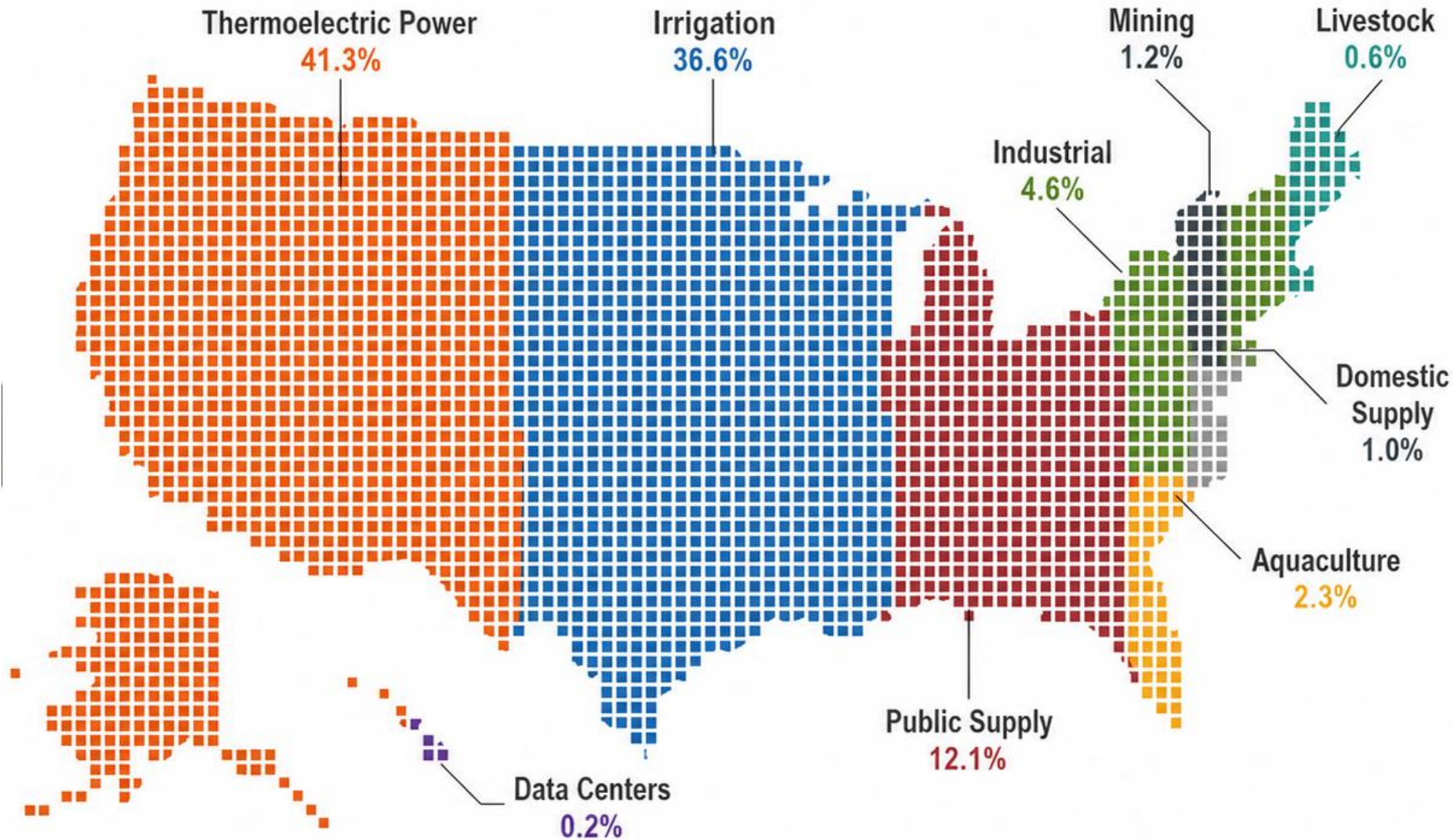
Consumptive
9%

HYPOTHETICAL SCENARIO: WORST CASE DEMAND

MISSOURI RIVER WATER SOURCE



2023 ESTIMATED USE OF WATER IN THE US



Total
Withdrawals
~1 Million AF
Per Day

Note: Percentages may not add to 100 due to rounding. Data centers include direct (approximately 141 AF/day) and indirect (approximately 1,773 AF/day) water use.

Source: USGS Circular 1441 (2018) for 2015 baseline data; Lawrence Berkeley National Lab (2023); EESI (2023); OCOLO (2023); Hyscaler (2024)



HOW MUCH
WATER ARE
DATA
CENTERS
REQUESTING?



Size

Scale

Building Or Campus?

Type Of Facility

Colocation Vs Hyperscaler

Energy Demands

Type Of Cooling

Evaporative Vs Closed Loop Vs Air

Evaporative Cooling

High Water,
Low Electricity

Water
Evaporation
Process To
Remove Heat
From Air

Closed-Loop Cooling

High Electricity,
Low Water

Coolant Mix
Circulates In
A Sealed
Circuit To
Absorb Heat

Air Cooling

High Electricity,
No Water

Circulate Cool
Air In & Hot
Air Out Of
Racks;
Inefficient In
High-Density
Centers

Hybrid Cooling System

Most Data
Centers
Use A
Hybrid
Cooling
System

WATER + ENERGY = DATA CENTER COOLING

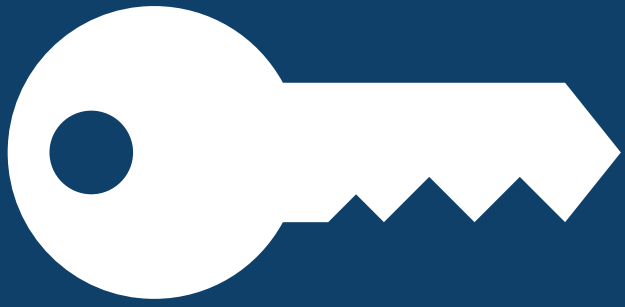
MERCER COUNTY DATA CENTER ORDINANCE

C33

If Data
Center Doesn't Buy
From A Water Utility,
Could Be
Applying To DWR
For A Water Permit

E1

State
Does Not
Designate
Waterbodies
As Perennial



KEY TAKEAWAYS

Missouri River Flows Support Ability
To Expand Economic Development
Opportunities In ND

ND Water Law Assures No Senior
Appropriator Will Be Unduly Affected
By New Water Permits

Data Center Water Usage Is Variable;
Generally Low Compared To Other Uses



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THANK YOU



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