

Welcome to our Zoom Webinar Series

Watering Wisdom: Growing a Healthy Lawn with Less Water

Part 1: Outdoor Water Use in the Twin Cities: Am I Using Too Much?
We will begin at approximately 2:00 PM Central Time



Future Webinars

- **Learning to Control Your Irrigation Controller**
Tuesday, July 28, 2020 at 2:00 p.m.
- **Turfgrass Species for Low-Input Minnesota Lawns**
Tuesday, August 18, 2020 at 2:00 p.m.
- **Lawn Care Best Management Practices**
Tuesday, September 8, 2020 at 2:00 p.m.
- **Winterizing Your Lawn**
September 29, 2020 at 2:00 p.m.



Using Zoom

- Use Q&A to ask questions
 - Mouse over bottom of Zoom window to access Q&A
- Chat is disabled
- Live transcript can be turned off depending on device

Audio Settings ^



Chat



Q&A

Leave Meeting

Q&A

All questions (1)

My questions

Lee 01:54 PM

Will there be a follow-up session?



Comment

Type your question here...

Watering Wisdom: Growing a Healthy Lawn with Less Water

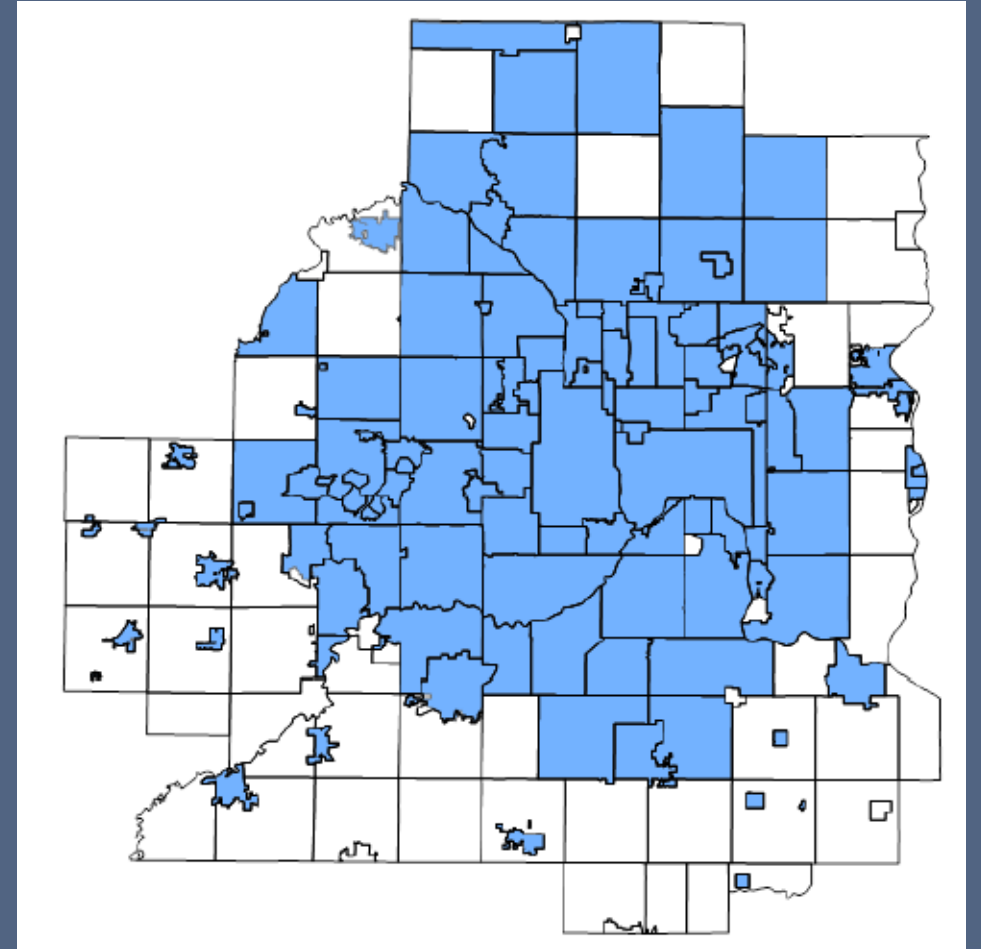
Outdoor Water Use in the Twin Cities: Am I Using Too Much?

Presenters: Brian Davis and Shane Evans

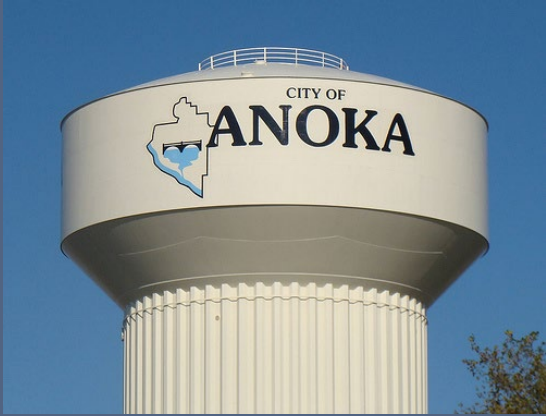


Water Supply in the Metro Area

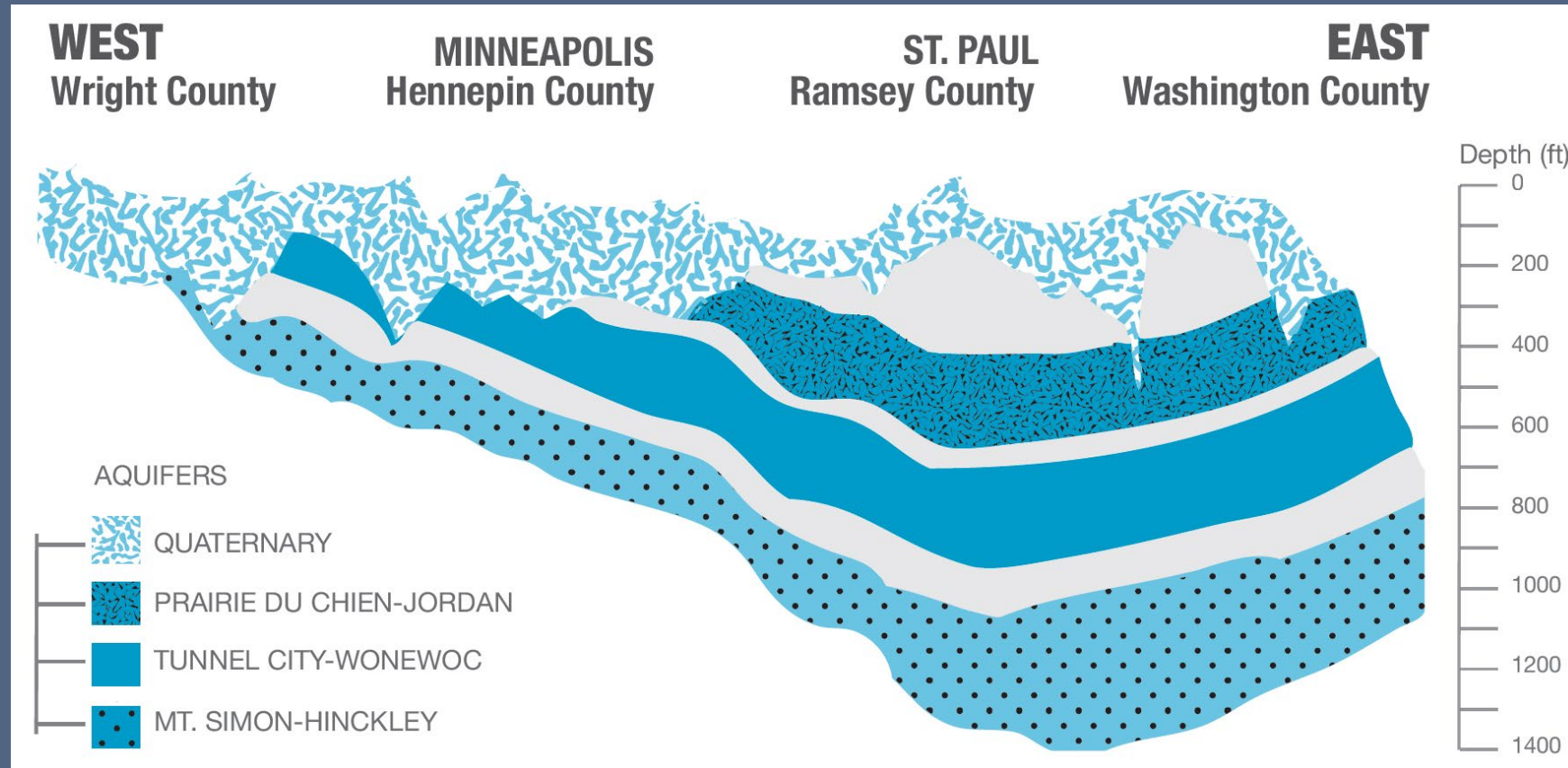
- 3 million people
- 186 communities, 106 water suppliers
- 70% of residents use groundwater
- Municipal water use:
 - Current: **300+** million gallons per day
 - Projected (2040): **450** million gallons per day



What Makes Us Different



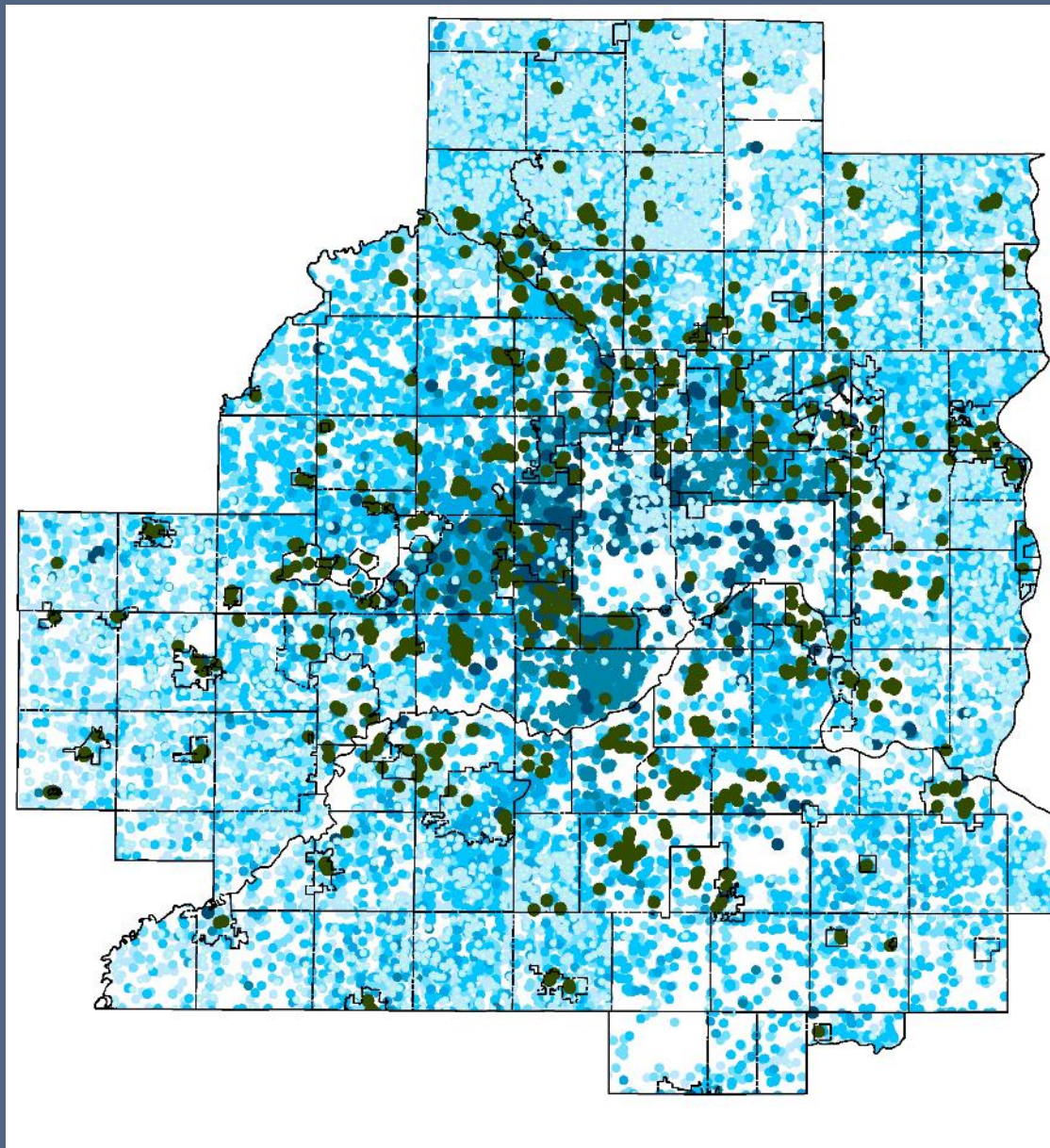
Four Extensive Aquifers



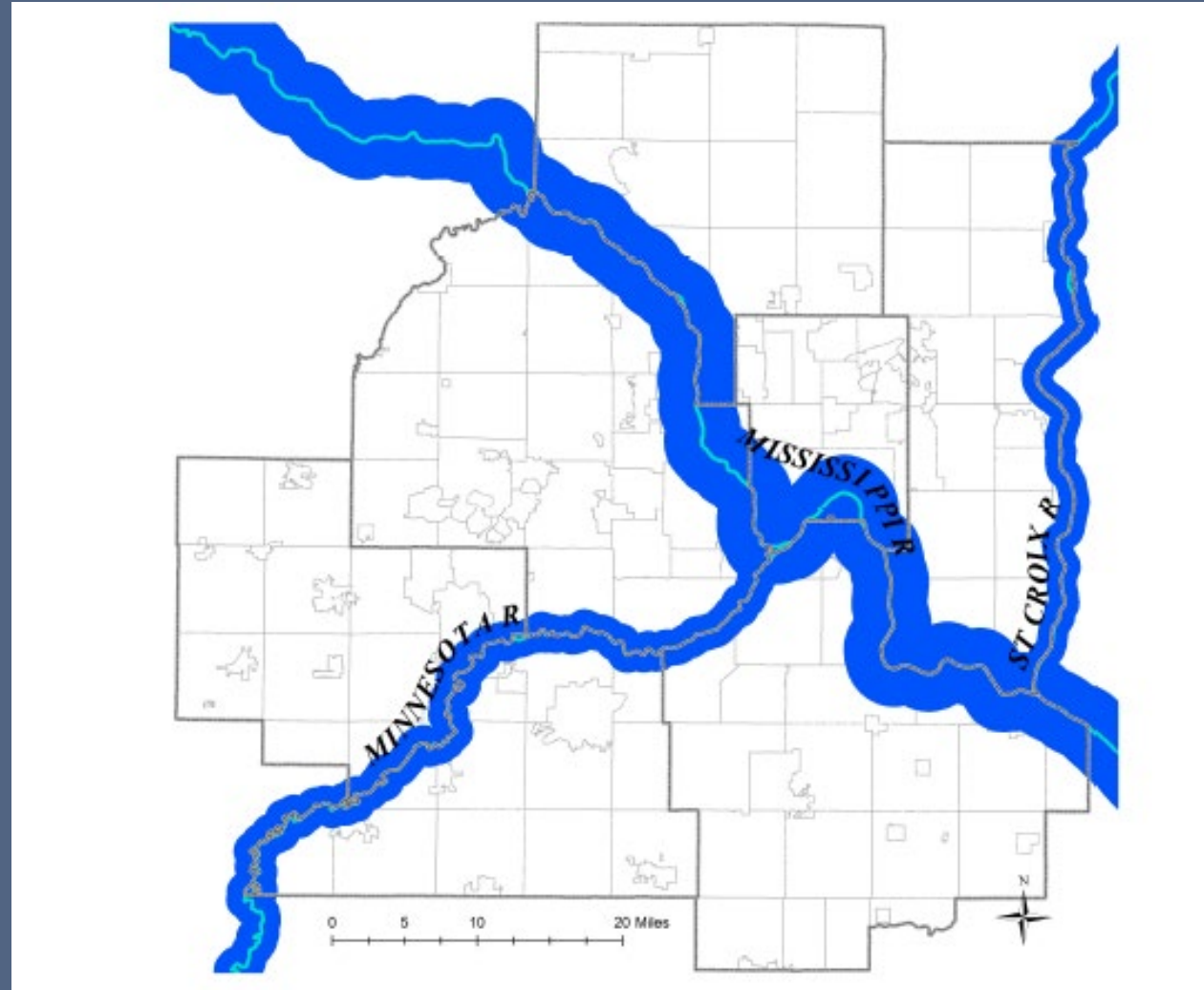
Metro Area Wells 1940 - 2010

- Public Well (800)
- Private Well (60,000)

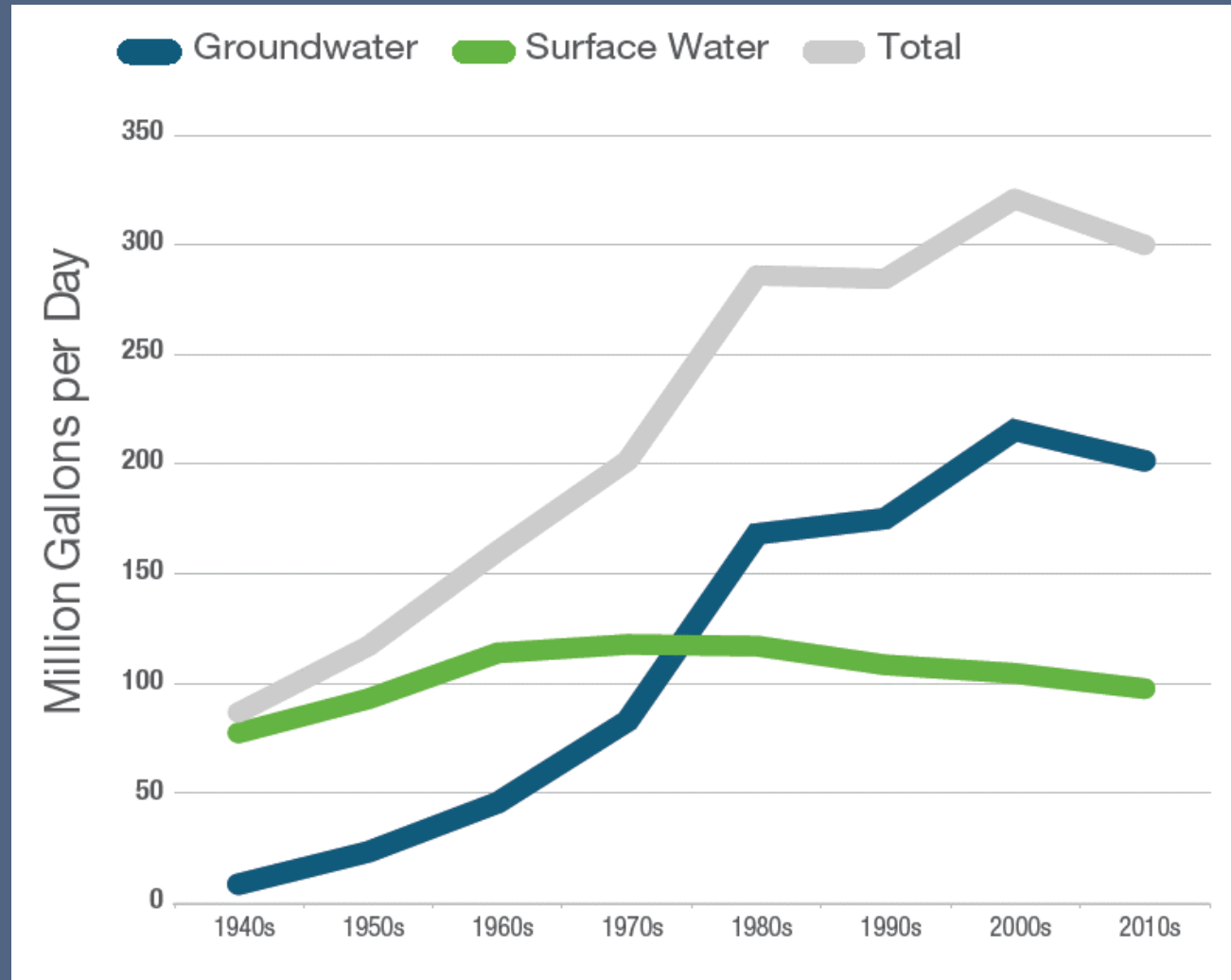
Darker blue = older well



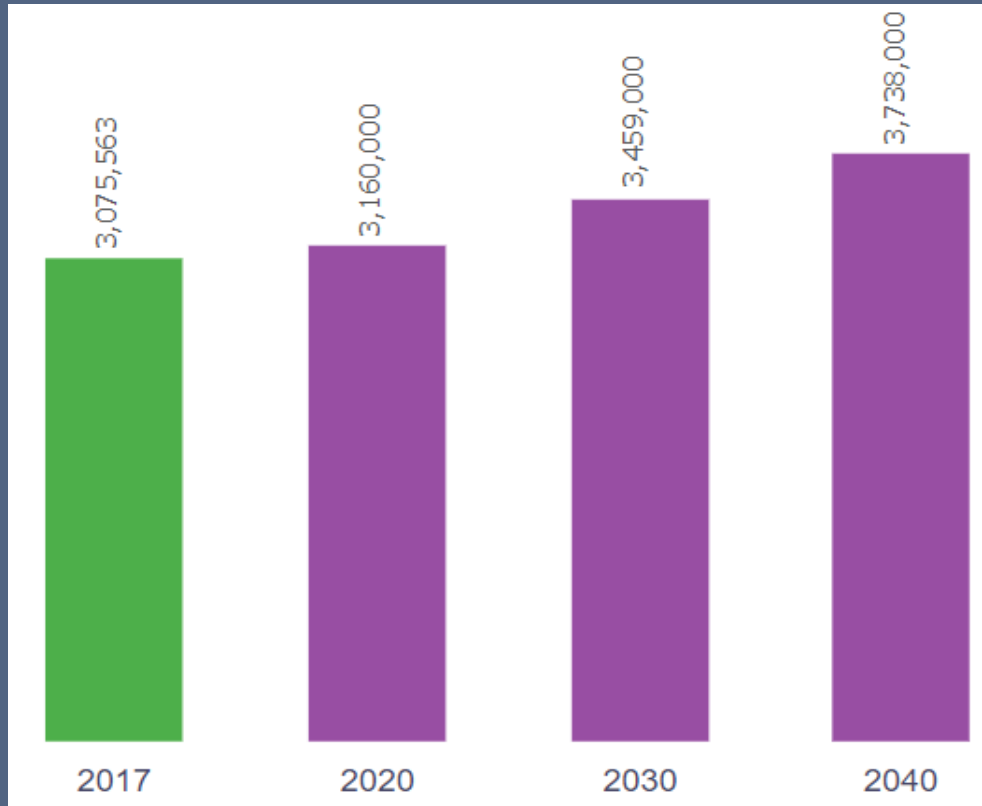
Mississippi River




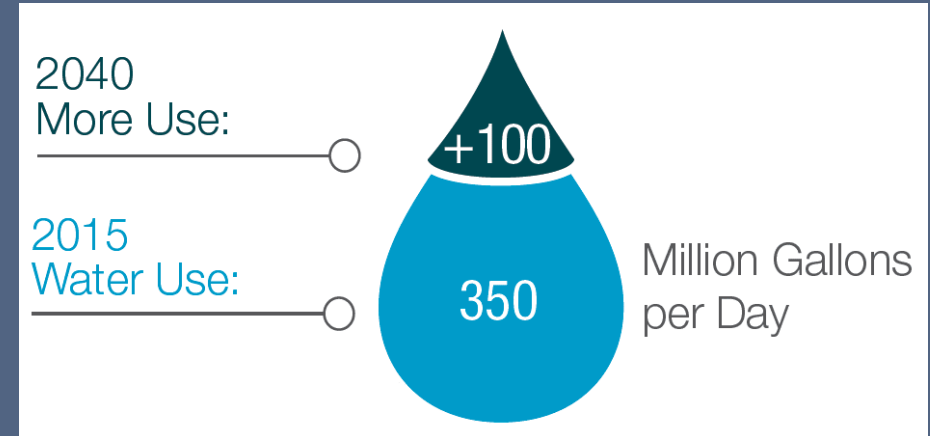
Groundwater and Surface Water



Growing Population Increases Water Use

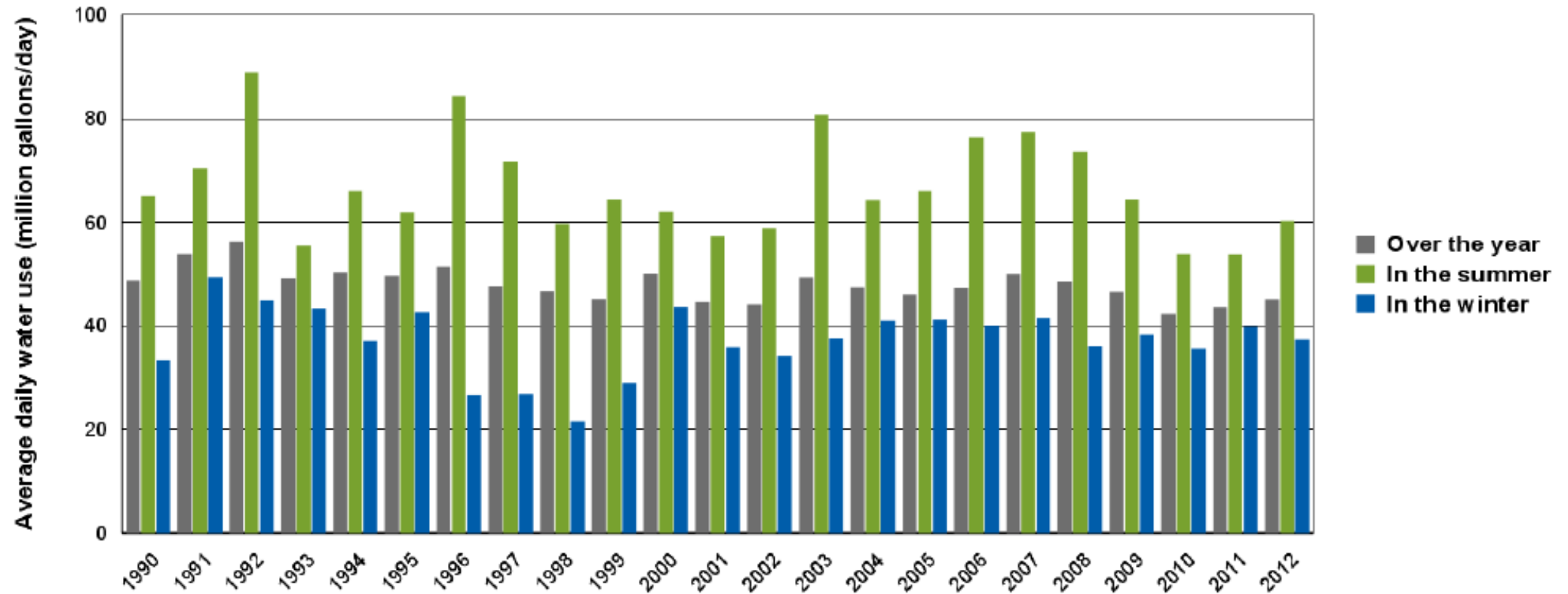


 Population: Estimates  Population: Forecasts



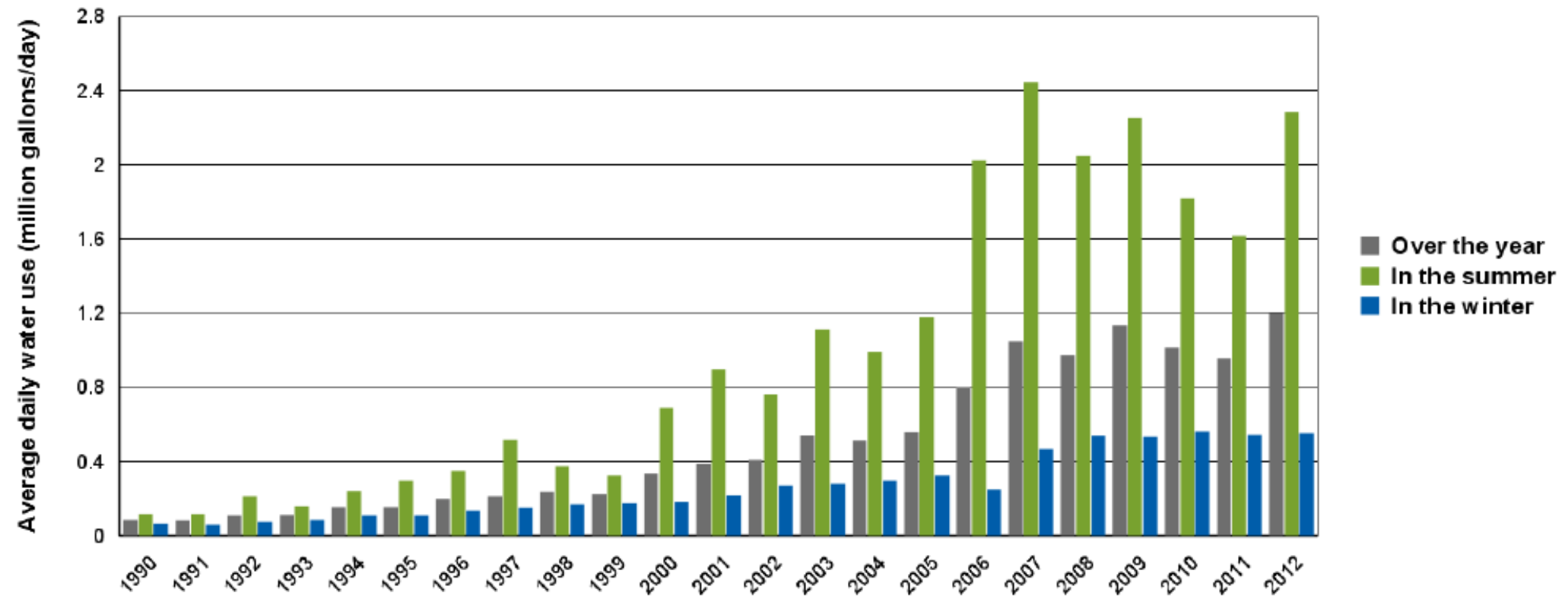
Big City

Historical municipal water use in the community



Developing Suburb

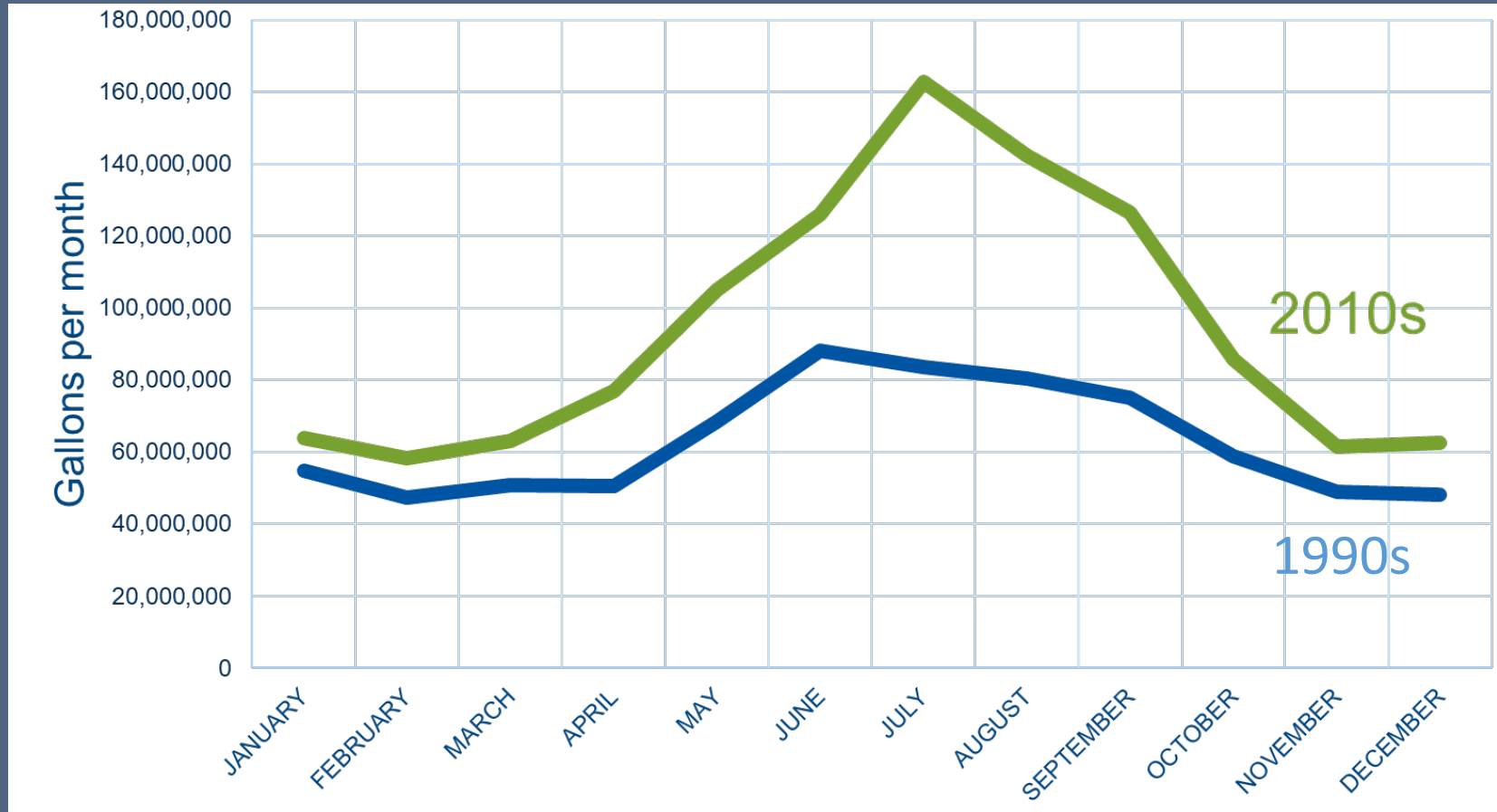
Historical municipal water use in the community



Outdoor Water Use



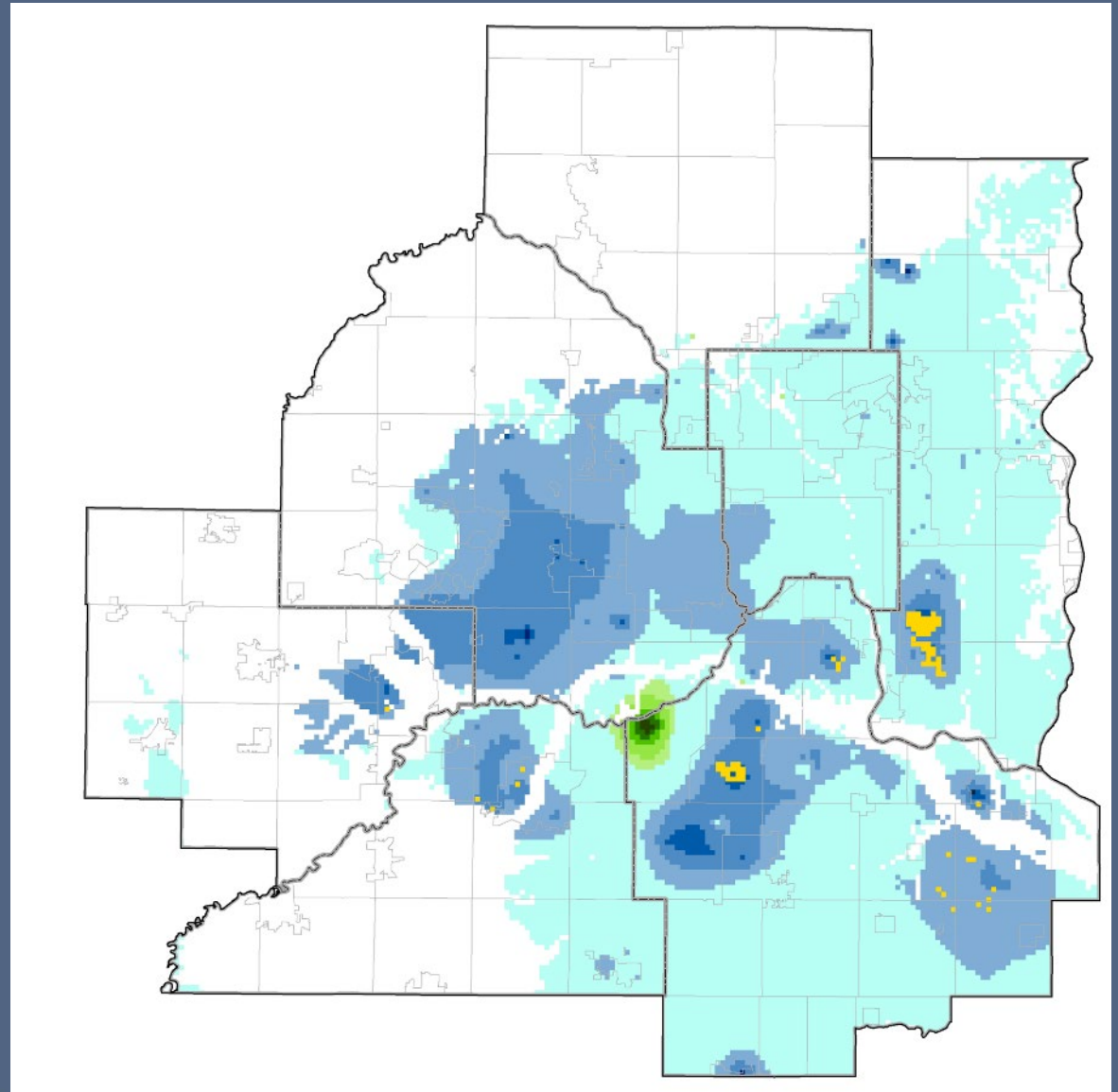
Outdoor Water Use



Aquifer Drawdown

Model results of 2040
pumping vs. today

Darker blue = more aquifer
drawdown



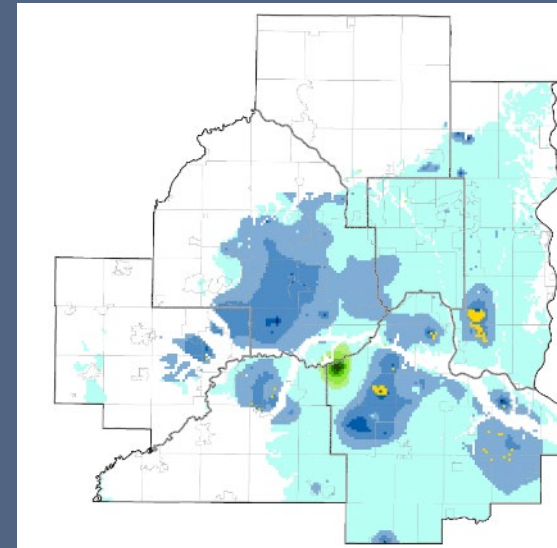
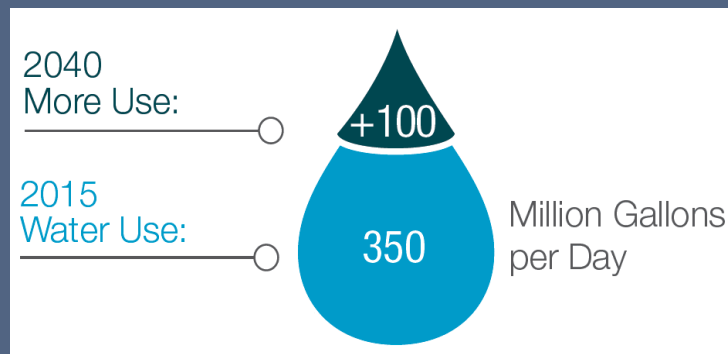
Excess Infrastructure



Municipal Well and Pump

Why we Need to Conserve Water

- Environmental sustainability
- Resource competition (Agriculture, Industry, Commercial, Residential)
- Decreasing supply → Increasing demand (urbanization)
- Utility Costs (\$\$\$)



Why we Need to Conserve Water



Why we Need to Conserve Water

LOCAL

Turf war: Overwatering our lawns is sucking up our water supply

Researchers are looking at changes because current water use rates mean aquifer levels in some areas could drop more than 40 feet by 2040, according to Met Council estimates.

By Hannah Covington Star Tribune | AUGUST 21, 2016 — 12:15PM



ELIZABETH FLORES

Jonah Reyes, a research scientist at the University of Minnesota, placed cups on a resident's lawn in Rosemount to measure water from the irrigation system.

Getting her first \$300 water bill was all it took for Hollie Jones to yank the plug on her automatic sprinkler system.

"It blew me away," said Jones, who was new to yard upkeep when she moved into her Brooklyn Park home four years ago. "I was wasting tons of water and turning my yard into a jungle."

For Jones, the decision to start running her sprinkler system on an as-needed basis made financial sense, but scientists say this kind of tweak in lawn care could yield crucial benefits in water conservation. During the summer months, water use in the metro area surges, in some places tripling compared with the amount of water pulled from rivers and aquifers in the winter. And that seasonal gap is widening.

Researchers from the Metropolitan Council and the University of Minnesota Extension suspect bad watering habits are largely to blame. So they've been

STATE + LOCAL

Overwatering lawns — and pavement — is the norm in the Twin Cities

A survey of 1,000 homeowners shows thirsty turf is sucking down the metro's water. On average, residents watered 500 square feet of pavement.

By Josephine Marcotty Star Tribune | OCTOBER 3, 2017 — 10:32AM



JERRY HOLT — STAR TRIBUNE

Sam Bauer, who studies lawns and grasses checked a water meter while working in the experimental growing fields at the UMN St. Paul campus Monday October 2, 2017 in St. Paul, MN.

Most homeowners overwater their lawns — to say nothing of their pavement — and have a love affair with a type of grass that doesn't really belong in Minnesota.

That's the wrap-up from a survey of 1,000 Twin Cities residents conducted in an effort to reduce the pointless lawn watering that is draining the metro area's aquifers and was one of the major issues behind a legal battle over shrinking White Bear Lake.

Conducted by University of Minnesota researchers and the Metropolitan Council, the survey found that more than half of homeowners leave their sprinkling systems on the automatic cycle. That means their lawns get watered whether they need it or not.

Three-fourths of the systems had at least one leaking sprinkler head.

On average, residents watered 500 square feet of pavement — which doesn't need it and increases runoff and water pollution.

EDITORIAL

Sprinkling sidewalks: Hey, watch where you're pointing those things

Think of the waste. Think of pedestrians.

By Editorial Board Star Tribune | JULY 12, 2019 — 6:15PM

As Twin Cities residents who variously walk, bike, drive, and ride transit, members of the Star Tribune Editorial Board are sometimes amused, sometimes alarmed by the factions that arise in support of favored activities. We think it takes all these things to make a metro, although occasional adverse experiences with each allow us to understand how tensions originate.

Into this simmering stew we'd like to add our own flavor of peevishness — a complaint against homeowners who heedlessly water sidewalks and streets along with their lawns. Such behavior wastes a resource and, depending on the spray, antagonizes pedestrians, forcing them either to test their agility or navigate a dry perimeter, perhaps one less protected from traffic.

We do appreciate people who take care of their properties — this also makes communities desirable. We're not about to tell anyone to give up their Kentucky bluegrass, though we'd note that a lush carpet is not the only pleasing kind of lawn and that making some of it less water-intensive is worth a thought.

But, again, the pavement. It's been estimated that half the irrigation used on landscapes is ineffective. To that we'd add (without even getting into the issue of runoff) that any water trained on a nonporous surface is woefully deployed unless you're hoping one day to grow moss.

The water supply may not seem like much of a problem in our region just now. In recent months, an abundance has fallen from the sky, with consequences including flooding and delayed planting. In general, though, we're lucky to live in an area that dependably turns green in the springtime and presents only occasional, terminable droughts. But much of the world suffers more tenuous patterns of replenishment. In India, the metropolitan area around Chennai, home to 9 million people, has been watching wells run dry. In California, a multiyear drought contributed to wildfires that killed more than 100 people last fall. (If you have concerns about how human behavior might alter our own aquatic bounty, you may mentally add them here.)

So watch where you point that water. Also, it wouldn't be wrong to be aware of bicyclists and pedestrians when you drive, follow expectations no matter your mode of movement, make eye contact at intersections, and always clean your plate.

Turfgrass Benefits (Beard and Green, 1994)

- **Environmental / Functional**

- Erosion control, Dust prevention, Glare reduction, Heat dissipation, Carbon sequestration, Noise abatement, Groundwater recharge

- **Recreational**

- Low-cost/safe surface, Provides opportunity for physical activity and social interaction

- **Aesthetic**

- Beautiful, Enhances quality of life, Improves mental health, Increases property values



How Much Water Does my Lawn Need?

- Turfgrass water requirements are related to performance and quality



How Much Water Does my Lawn Need?

- **1-inch per week during drought period**
 - Deep and infrequent
 - Two 0.5-inch applications (alt. three 0.33-inch apps)
- **Cycle and soak to prevent runoff**
- **Conduct irrigation audit to determine run-time**



Performing an Irrigation Audit

1. Inspect Your Irrigation System

- Are you watering the sidewalk?
- Check for broken heads

2. Performance Test

- Place catch cans evenly throughout your lawn/zone

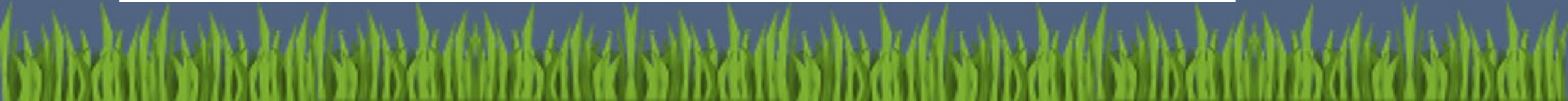
3. Determine Precipitation Rate and Uniformity

- Measure how much water is in each cup

4. Set an Irrigation Schedule

- Based on your audit you should know how long to run your system

<https://extension.umn.edu/lawn-care/auditing-home-lawn-irrigation-systems>



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Inspect Your Irrigation System



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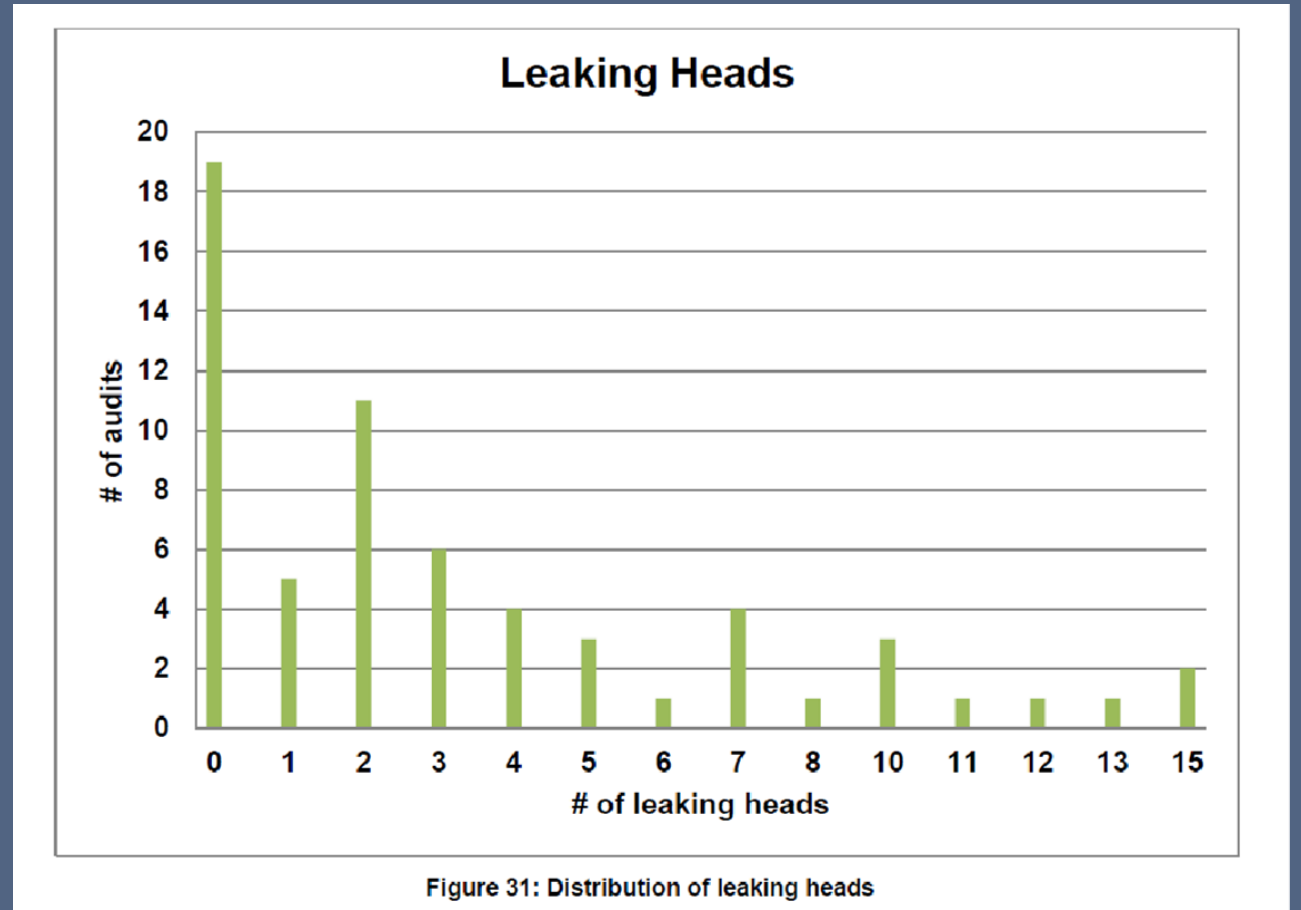


Inspect Your Irrigation System



Inspect Your Irrigation System

- Of 62 irrigation audits, 19 saw no “leaky” sprinkler heads
- In other words, 70% of homes we audited had at least one “bad” sprinkler head



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Performance Test



Performance Test

Recommended to place 20 catch cups for each zone you test

Run each zone for 30 minutes

Catch cans are found at irrigation supply stores but you can use old tuna cans or even coffee mugs



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Determining Precipitation Rate

- Example Calculation
 - The average for all catch cups is 0.25 inches of water
 - The system ran for 30 minutes
 $0.25 \text{ in} \times 2 = 0.5 \text{ in/hr}$
- Your precipitation rate is...
0.5 inches of irrigation applied every hour



Determining Uniformity

- Example Calculation

- If you have 20 catch cups total, you divide the average of the lowest 5 catch cups by the average of all 20 catch cups
- So if the average of the lowest 5 cups is 0.19 inches and overall average is 0.25 inches.....

$$0.19 \div 0.25 = 0.76$$

- Uniformity of your System is 0.76 or 76%
 - If below 60% you need to make adjustments to your system



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Set an Irrigation Schedule

- Remember the precipitation rate (0.5"/hr)
- To apply 0.5" twice a week you would run your program for 60 minutes each time
- To apply 0.33" 3 times a week you would need to set the run-time for 40 minutes

$$\frac{0.5''}{60 \text{ Minutes}} = \frac{0.33''}{? \text{ minutes}}$$



Additional Information

<https://turf.umn.edu/watering-wisdom-webinar-series>

<https://extension.umn.edu/lawncare/auditing-home-lawn-irrigation-systems>

<https://www.epa.gov/watersense>

<https://www.epa.gov/watersense/irrigation-pro>





Questions?

Please use the Q & A feature in Zoom to ask any questions you have

Please join us for our future
webinars

sevans@umn.edu

Twitter - @WaterWiseShane

