

EFFICIENT LAWN WATERING HELPS CHICAGO REGION CONSERVE WATER, SAVE INFRASTRUCTURE COSTS

Key Takeaways

- Reducing outdoor water use saves money and helps conserve the region's limited water resources, especially during times of drought.
- Although many communities have adopted outdoor water use strategies that enhance conservation, guidelines can vary widely from town to town.
- To promote water conservation, communities should take four steps: create common guidelines, prepare for the next drought, target high outdoor water users, and encourage water-saving landscapes.

Executive summary

Communities throughout northeastern Illinois typically see a surge in outdoor water usage, starting in May and peaking in July, as residents and businesses look to keep their lawns green and lush during the summer. But increased usage and inefficient watering techniques, compounded by low river and groundwater levels that result from warmer and drier weather, strains the region's drinking water supplies and raises sustainability concerns.

Watering at the wrong time of day or leaving the sprinkler on for too long can lead to excessive outdoor water use, which can have greater ramifications for the community at-large. Such actions can result in expensive infrastructure projects and maintenance costs for many communities that have to increase capacity to keep up with the summertime demand. The effects of climate change, such as longer periods of drought, also stand to intensify the issue over time.

ON TO 2050, our comprehensive regional plan, calls for [water conservation](#) that can promote more sustainable practices for communities grappling with supply limitations or relying on Lake Michigan, where international agreements require sustainable uses of resources. Water conservation also plays a vital role in maintaining a strong supply of high-quality drinking water that can serve future generations. This policy brief examines the strategies communities can use to counteract excessive use and save water.

Analysis

Importance of reducing outdoor water use

Water conservation has long been recognized as critical to maintaining a sustainable supply of high-quality drinking water. Although parts of the Chicago region enjoy abundant water supply, other areas face limited and decreasing supplies. Current conservation efforts are paying off, but mostly when it comes to indoor use.

According to the Alliance for Water Efficiency, average annual indoor household water use has dropped by 22 percent since 1999. This is largely because of two national initiatives, the Energy Policy Act of 1992 and the U.S. Environmental Protection Agency's (EPA) WaterSense program, which have led to more efficient plumbing fixtures and appliances in homes and businesses. But outdoor water use for lawns, landscaping, and car washing remains high. Some utilities could even see more increases in residential water use this summer as the coronavirus pandemic continues. It's easy to imagine residents spending more time in their gardens and lawns while sheltering in place.

Under more normal circumstances, approximately one-third of household water use is devoted to outdoor watering, and as much as 50 percent of that water is wasted due to unwise and wasteful watering behavior. In the Chicago region, water use increases in May and peaks in July as residents and businesses try to keep their yards and gardens green. This pattern often coincides with low river and groundwater levels, and is worse during hot dry summers, which may increase in frequency and intensity due to climate change, according to the [National Oceanic and Atmospheric Administration](#).

Outdoor water use can strain our drinking water systems as communities struggle to meet “peak” demand during summer months. Building and maintaining the infrastructure to [meet peak demand](#) — which can be up to three times higher than winter demand — can be expensive for communities and their rate payers. By reducing outdoor water use, communities can delay and/or reduce their infrastructure investments and save money.

Main contributors to excessive outdoor water use include inefficient irrigation systems and practices, like applying water too often, and watering at the wrong time of day. The Alliance for Water Efficiency has [found](#) that nationally, better management of outdoor watering results in water savings of up to 56 percent, depending on a variety of factors. This policy brief highlights some of those best practices that communities across the region and nation have taken to reduce outdoor water use and save money.

Lawn watering guidelines in the Chicago region

Over 85 percent of municipalities in the Chicago region have lawn watering guidelines, due in large part to requirements for using Lake Michigan water and voluntary guidelines like those issued by the [Northwest Water Planning Alliance](#). Most guidelines focus on proper lawn watering, such as alternating days or time of day, and encouraging the use of more efficient equipment. Lawns in the Chicago region [typically need](#) no more than one inch of water, or approximately two hours of watering per week, and even less if it rains.

Lake Michigan requirements

Communities using Lake Michigan water are [required by the state of Illinois](#) to implement a variety of water conservation programs, including restricting non-essential outdoor water use. From May 15 to September 15, communities must enact alternating watering days and time-of-day restrictions that avoid the hottest six hours of the middle of the day (i.e., 10 a.m. to 4 p.m. or 12 p.m. to 6 p.m.). New or replacement sprinkler systems must be [WaterSense certified](#).

Northwest Water Planning Alliance requirements

A difficult 2012 drought and high water demand inspired the [Northwest Water Planning Alliance](#) (NWPA) — a group of more than 80 communities in DeKalb, Kane, Kendall, Lake, and McHenry counties focused on ensuring a sustainable water supply — to endorse new, voluntary lawn watering guidelines. Similar to the Lake Michigan requirements, the [NWPA ordinance](#) includes consecutive day and time-of-day restrictions.

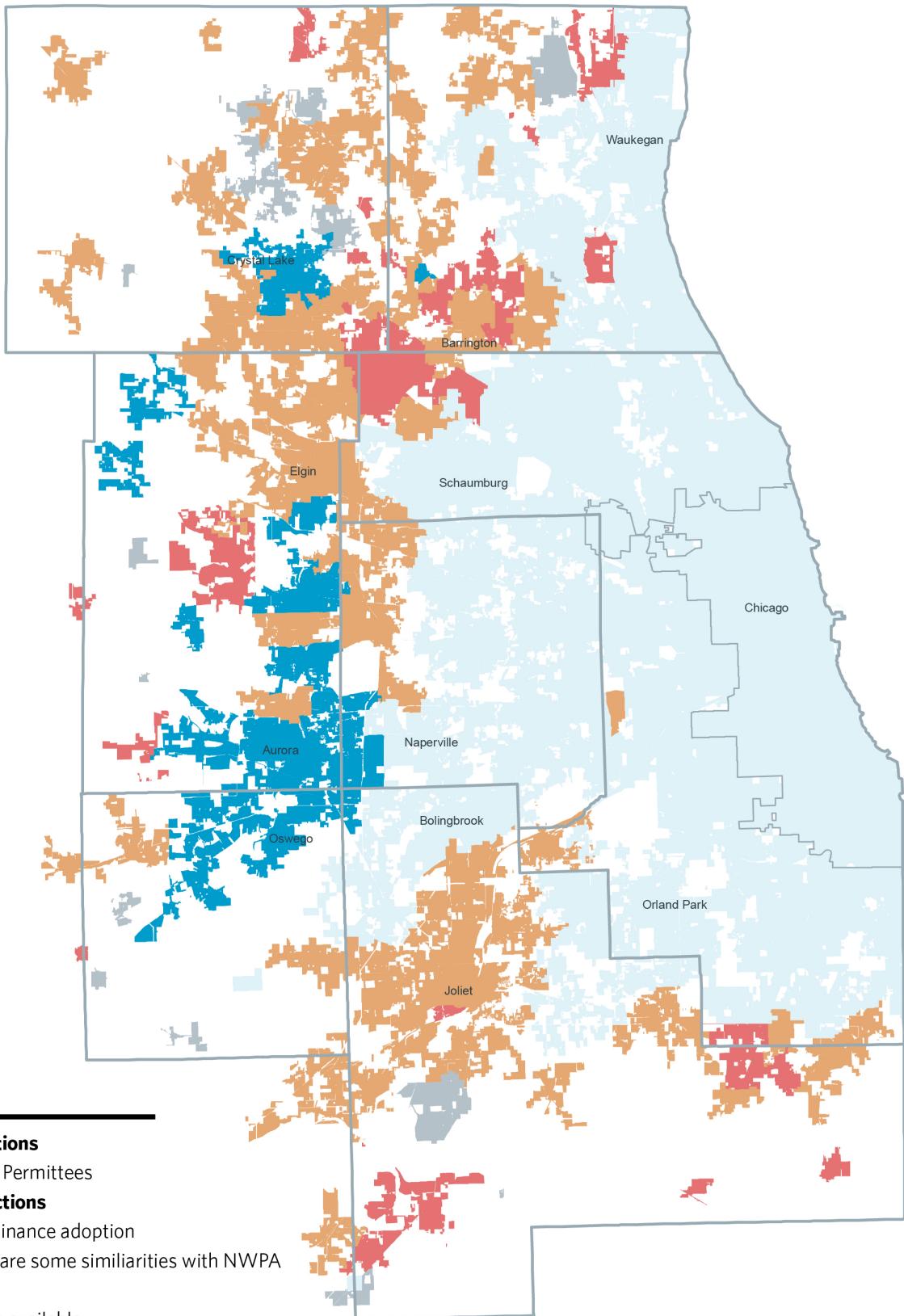
Unlike Lake Michigan requirements, the NWPA ordinance applies year-round and discourages the use of unattended sprinklers in favor of more water-efficient handheld devices, irrigation systems, and water reuse options, such as captured rainwater. The ordinance bans the “watering” of sidewalks, driveways, and roads. It also prohibits installation of new, water-intensive landscaping (seed, sod, and planting) in July and August, the most water-stressed months of the year. Each municipality can address extreme situations, such as drought or water shortages, via emergency proclamation.

Conditions	Restrictions	Rationale
Year-Round (Green Tier)	<p>Handheld watering devices, drip irrigation systems, or devices using non-potable water can be used any day or time.</p> <p>Sprinklers can be used at</p> <ul style="list-style-type: none"> • Even addresses on even calendar days from 6–9 a.m. and 6–9 p.m. • Odd addresses on odd calendar days from 6–9 a.m. and 6–9 p.m. 	<p>Handheld watering devices generally use less water than sprinkler systems because the watering is directly controlled, whereas sprinkler systems are often left to run on their own.</p> <p>Restrictions by date and address effectively limit consecutive day water use and make it easier to identify non-compliance, as only one side of a block should be watering on any given day</p> <p>Time-of-day restrictions prevent water use during the hottest, sunniest part of the day, when water would most likely evaporate rather than being taken up by the grass.</p>
During Drought (Yellow Tier)	<p>The use of sprinkler systems is prohibited.</p> <p>Outdoor use of water is allowed using handheld devices, drip irrigation systems, or harvested rainwater.</p>	<p>Water supply conditions warrant further restrictions to ensure supplies for essential water use.</p> <p>Prohibiting sprinklers, yet still allowing handheld watering, allows some landscaping to survive while lawns go dormant.</p>
During Extreme Drought (Red Tier)	Ban on outdoor water use.	<p>Rare water supply conditions that warrant further restrictions to ensure supplies for essential water use.</p> <p>During these times, it is easier to ban all outdoor watering with no exceptions for the sake of consistency and easy enforcement.</p>

Varying adoption levels of voluntary guidelines

To learn more about how river- and groundwater-dependent communities were applying lawn watering restrictions, CMAP surveyed 116 of the region's communities.

- 76 communities have voluntarily adopted lawn watering restrictions.
- 25 communities had no restrictions on outdoor water use.
- 15 communities could not be assessed because their ordinances are not posted online.
- 13 communities have adopted the NWPA ordinance.



Required restrictions

○ Lake Michigan Permittees

Voluntary restrictions

● Full NWPA ordinance adoption

● Restrictions share some similarities with NWPA

● No restrictions

● No information available

Source: CMAP

Aside from emergency proclamations, communities most commonly adopt guidelines that restrict consecutive days of watering or limit time-of-day watering to avoid the middle of the day. Although 13 communities have adopted the full NWPA ordinance with minor edits, most other communities have chosen to implement only a few provisions or allow more water use. Even within these three common guidelines, variations exist on when the restrictions apply. It is important to note that different lawn watering guidelines have varying effects on reducing outdoor water use.

Type of provisions	Percentage of communities with provision (% , n=76)
Enforcement period	
Year round	66%
Seasonal	34%
Time restrictions	
Consecutive day restrictions	74%
Time-of-day restrictions	65%
Both of above	61%
Exemptions for handheld devices, drip irrigation, rainwater harvesting, greywater reuse	22%
All three of the above	22%
Emergency proclamation	
Emergency proclamation	91%
Use of color-coded tiers to communicate restrictions	29%
Seed and sod restrictions	
Seasonal limits	21%
Permit requirements	25%
Both of the above	14%
Other	
Waste of water prohibited	22%

Strategies to reduce outdoor water use

Curbing outdoor water use can help the region maintain our long-term supplies well into the future. CMAP recommends four strategies that communities can use:

- Create common guidelines across communities
- Prepare for the next drought
- Target high outdoor water users
- Encourage water-saving landscapes

Join forces with common guidelines

Communities must educate residents and businesses about watering guidelines and the importance of conservation. Research by the [Alliance for Water Efficiency](#) has shown that communication and messaging strategies are essential to reduce outdoor water use.

By setting common guidelines across the region, communities can simplify communication since a single message can apply broadly. When the Northwest Water Planning Alliance began

drafting its model ordinance, the alliance recognized the value of communicating uniform watering hours and drought status criteria across a wide area. By collaborating and using the same set of guidelines, water utilities can reinforce each other's messages through municipal websites, water bills, newspapers, and social media.

Be prepared for droughts or other water shortages

Having a municipal drought action plan is essential, especially in a changing climate. Illinois' [Drought Preparedness and Response Plan](#) identifies a number of shallow groundwater-dependent communities in the Chicago region as particularly vulnerable to drought conditions.

Several organizations provide guidance on drought planning, including the [American Waterworks Association](#) and the [U.S. Drought Portal](#). The year round-drought provisions in the NWPA lawn watering ordinance also are a great way to start. Although Lake Michigan communities are significantly less susceptible to drought conditions, their methods and communication can reinforce the messaging for nearby communities dependent on groundwater and promote wise water use.

Target high outdoor water users

Widespread enforcement of lawn watering restrictions rarely will be a municipality's priority. Working directly with subdivisions, office parks, churches, and other large landowners can be an effective strategy for reducing outdoor water use. The city of Aurora's Public Works department found it more effective to directly communicate watering restrictions in areas with large subdivisions, especially those with large shared landscaped areas, to ensure they were following lawn watering restrictions. Identifying higher outdoor water-using customers has been a common practice in other areas of the country, especially those facing dire water supply challenges.

Utility rebate programs that support upgrading inefficient irrigation systems to more efficient WaterSense products also are common. Utilities in the Chicago region already are familiar with such strategies. The city of Joliet is offering a low-flow toilet, as well as a rain barrel rebate program, through its [Rethink Joliet Water campaign](#). Utilities have found upfront water conservation improvements can avoid or delay expensive infrastructure expansions in the future.

Design water saving landscapes

Planning and development decisions, such as subdivision, zoning, and landscaping provisions, also can influence water use. Development guidelines that retain natural areas and features, use native and drought tolerant plants, and limit the amount of thirsty turf grass not only help conserve water, they create beautiful yards.

In fact, landowner preferences are changing. A recent [national survey](#) on landscaping revealed 70 percent of respondents believe their yard could look attractive with landscaping that uses less water and over 50 percent expressed a desire to decrease the amount of water they use outdoors. Municipalities can share a number of resources with homeowners to help them transition to a water-efficient yard, including the [U.S. EPA WaterSense outdoor program](#) and the [region-specific resources](#) developed for the Northwest Water Planning Alliance.

Wondering how to follow these recommendations? Start by checking your municipality's existing outdoor water use guidelines and communication strategies, and refer to the [NWPA lawn watering resources](#) for ideas on how to encourage more water conservation.

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