



Water



VISION:

Bloomington will maintain a safe, sufficient, and clean water supply

Water is vital for existing and future Bloomington community members. The City plays a crucial role in the conservation and management of the Lake Monroe water supply for residents and businesses. Both water quality and conservation will continue to be important issues for Bloomington as it faces a growing population and the inevitable impacts of climate change.

WATER USAGE

The City of Bloomington Utilities department (CBU) provides water to all Bloomington residents

and businesses and sells water wholesale to nine rural water cooperatives. Approximately half of all water sold by CBU is for residential use (Figure 1).¹ Daily per capita water consumption in single family residences declined by about 20 percent from 2008 (69 gallons per capita daily – GPCD) to 2017 (55 GPCD), while daily per capita water consumption in multi-family residences declined by approximately 18 percent (from 60 GPCD in 2008 to 49 GPCD in 2017). Average per capita daily water consumption within the city was 96.2 gallons in 2016, taking into consideration both residential and commercial sales.²



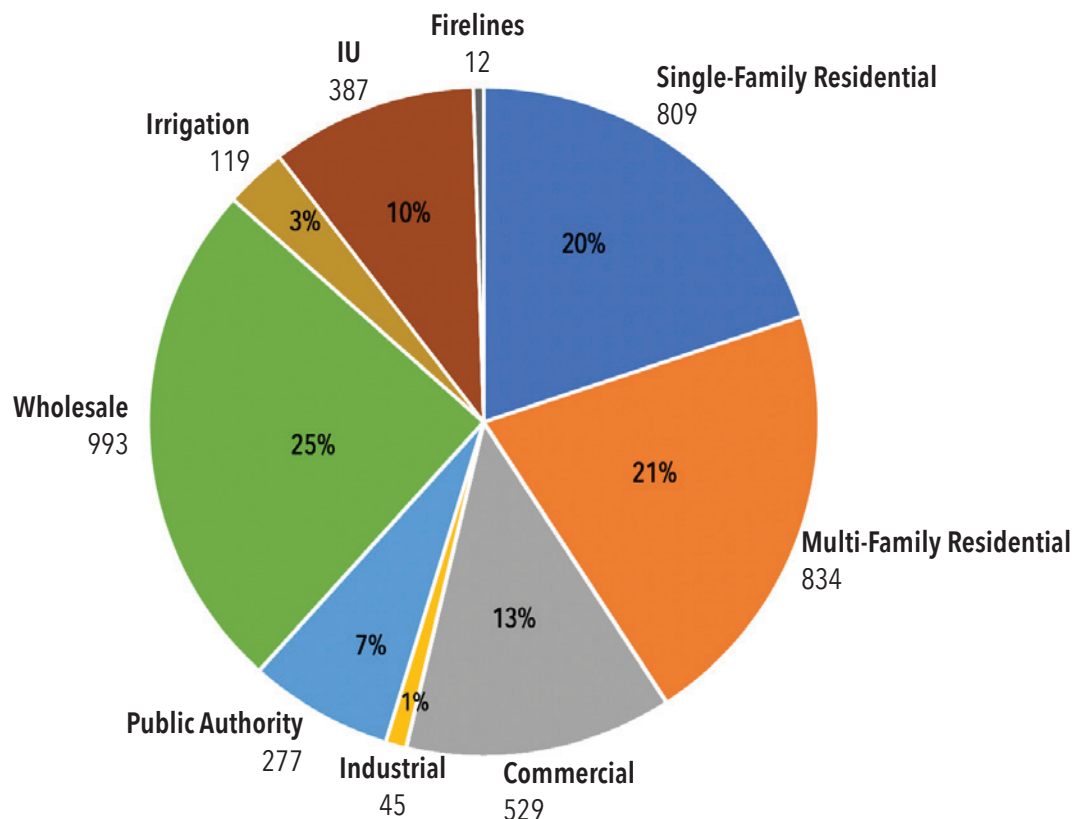
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Peak daily demand (the maximum amount of drinking water produced daily) is currently 23 million gallons, while the current water treatment capacity of the Monroe Water Treatment Facility is 30 million gallons daily. If water demands increase with population growth, the City will need to make significant investments in additional capacity to ensure peak daily demand in the summer months does not exceed CBU treatment capability.

CBU received approval to increase water rates by 20.06 percent beginning in September 2017

to fund \$4.6 million in investments to address aging water infrastructure, increase distribution capacity, and reduce leakage. CBU conducted an initial water leak survey and is in the process of developing a transmission and distribution system pipe leak detection and repair program. CBU also created the [Water Wise Bloomington website](#) to educate the public about the benefits of water conservation; it offers web visitors a copy of the U.S. EPA Watersense Leak Detection Checklist to educate residents about how to check for water leaks around the home. Additional efforts are

Figure 1: 2017 City of Bloomington Utilities Water Sales by Source (in million gallons)





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GOAL 6.1: Reduce Per Capita Daily Water Consumption 20 percent by 2023, relative to a baseline of 96.2 gallons in 2016

	ACTION	LEAD PARTNERS	TIMEFRAME	COST
6.1.a	Develop an enhanced public education campaign to encourage water conservation, with a focus on peak summer month water use ³	CBU, Rural Water Cooperatives, Parks & Recreation	2019	\$\$
6.1.b	Develop home leak detection repair program for low-income individuals ⁴	CBU, Housing & Neighborhood Development, South Central Community Action Program	2020	\$\$
6.1.c	Implement advanced metering infrastructure to allow remote meter readings, assist with identification of leaks, and provide customers with more detailed usage data ⁵	CBU	2020	\$\$\$\$*
6.1.d	Review and update drought contingency policies in the event of future emergencies ⁶	CBU, Parks & Recreation	2020	\$
6.1.e	Establish rain sensor irrigation rebate program and provide information on appropriate sensor settings ⁷	CBU, Parks & Recreation	2021	\$\$*
6.1.f	Explore options for implementing water rates to encourage conservation ⁸	CBU, City Council	2021	\$\$

needed throughout the community to minimize waste and encourage use of water efficient fixtures to ensure the continued availability of this vital resource.

DRINKING WATER QUALITY

CBU is responsible for ensuring that Bloomington drinking water is in compliance with the U.S. EPA's National Primary Drinking Water Regulations.⁹ CBU draws the city's drinking water from nearby Lake Monroe and treats the water at the Monroe Water Treatment Plant. Each year, CBU publishes

a Water Quality Report¹⁰ to disclose levels of detected contaminants found in its drinking water and posts the most recent data on the [City of Bloomington Data B Clear website](#).¹¹

The presence of disinfection products (DBPs) in Bloomington water received national attention in 2016 due to concerns that exposure to drinking water with elevated levels of DBPs on a long-term basis can compromise various organs and lead to an increased risk of cancer.¹² While Bloomington's eight sample locations never exceeded U.S. EPA requirements for Maximum Contaminant Levels



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(MCL), it was observed that DBP concentrations were increasing over time. A benchmarking study recommended operational changes to reduce the amount of chlorine disinfectant and change the location of chlorine addition in the treatment process to reduce effluent DBP concentration. CBU completed recommended operational changes in the second quarter of 2016 and created a process optimization team to oversee long-term efforts to improve effluent water quality and reduce DBPs. The change in disinfection practice has led to an increase in the growth of algae in the treatment basins. While this does not adversely affect water quality, it leads to more-frequent backwashing of filters, which reduces operational efficiency. In response, CBU has opted to clean the treatment basins more frequently to remove the algae.¹³

While Bloomington's water quality complies with all U.S. EPA standards, it is likely that source-water quality from Lake Monroe will exhibit increasing concentrations of organic materials. As a result, CBU will need to continue to monitor and reduce DBPs and be attentive to possible future source-water issues (such as algal toxins). In addition, CBU is participating in efforts led by the nonprofit group the Friends of Lake Monroe to improve watershed and water-quality management in Lake Monroe.

SURFACE WATER QUALITY

Surface water quality is regulated under the federal Clean Water Act, administered by the U.S. EPA. The Indiana Department of Environmental Management (IDEM) is the primary agency responsible for monitoring and assessing the quality of Indiana's water bodies. IDEM performs an assessment every two years via an Integrated Water Monitoring and Assessment Report and

submits this information to the U.S. EPA and the public. This report includes assessments of all Indiana surface waters and a list of all impaired waters that are in violation of the water quality standards associated with their primary use.¹⁴ The following Monroe County water bodies were listed as impaired (Category 4 or 5) in the 2016 Integrated Report: Bean Blossom Watershed/Stout Creek Watershed/Clear Creek Watershed; Salt Creek Lower Watershed; Indian Creek Watershed; Richland Creek Watershed; White River West Fork – Owen County; Monroe Reservoir; and Griffy Reservoir.¹⁵

The state is required to develop a pollution management plan, including limits on the amount of pollutants specific users can release into the water (referred to as Total Maximum Daily Load - TMDL), for all water bodies considered to be impaired at a Category 5 level.¹⁶ In the past, TMDL plans have been developed for Bean Blossom Watershed (2006), Indian Creek Watershed (2005), Richland Creek Watershed (2006), White River West Fork Watershed (2007), and Salt Creek Watershed (2018). Watershed management plans have been developed for Bean Blossom Watershed (2008), Indian Creek Watershed (2009), and Richland Creek Watershed (Plummer Creek, 2013). Stout Creek Watershed, Clear Creek Watershed, and Griffy Reservoir, located in Bloomington city limits, were designated as Category 5 water bodies in the 2016 Integrated Report, but do not currently have their own TMDL plans. Stout Creek and Griffy Reservoir, however, were referenced in the 2008 Beanblossom Watershed Plan created by Hoosier Environmental Council. In addition, Monroe Reservoir, which is located outside Bloomington city limits, but serves as the city's primary source of drinking water, has been identified as an impaired



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water body but TMDLs and watershed plans have not yet been created.

The Monroe County Soil and Water Conservation District (SWCD) and Hoosier Environmental Council have led efforts to address water quality in Bean Blossom Watershed and Lake Lemon. From 2009 through 2012, the SWCD led implementation of a \$600,000 Clean Water Act 319 grant from IDEM to educate the public about water quality issues

and best management practices, and to offer incentives for nearby land owners to implement best management practices to reduce nonpoint source pollution.¹⁷ Funding for this project came from grants distributed to states by the U.S. EPA, which issued \$167.9 million nationally for nonpoint source management programs in 2017.

Friends of Lake Monroe is also working with IU to update research on environmental conditions

GOAL 6.2: Participate in at least two partnerships designed to improve surface water quality in Monroe County by 2023

	ACTION	LEAD PARTNERS	TIMEFRAME	COST
6.2.a	Pursue Clean Water Act 319 grants for efforts to clean and protect Bloomington area watersheds through collaborations with community partners	MCSW, IU, Parks & Recreation, Friends of Lake Monroe	2023	\$\$\$
6.2.b	Begin implementation of approved Clean Water Act 319 programs and monitor progress by assessing populations of pollution intolerant invertebrates	MCSW, IU, Parks & Recreation	2023	\$\$\$\$*

GOAL 6.3: Expand participation in City-led surface water quality programs, compared to a 2019 baseline

	ACTION	LEAD PARTNERS	TIMEFRAME	COST
6.3.a	Establish a 2019 participant baseline for participation in City-led water quality programs, such as the Hoosier RiverWatch and Adopt-a-Stream programs	CBU, Parks & Recreation	2020	\$\$
6.3.b	Evaluate development of a SMART goal for increasing the participation in City-led surface water quality programs, per the development of a 2019 baseline	CBU, Parks & Recreation	2020	\$
6.3.c	Sponsor promotional efforts aimed at increasing participation in these educational programs	CBU, Parks & Recreation	2020	\$\$*



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at Lake Monroe and with CBU, the Nature Conservancy, and other partners to develop a watershed plan for this critical water body. The plan will work on ways to prevent algae blooms, minimize nutrient inputs into the lake, minimize sediment, maintain water storage capacity, and minimize total organic carbon.

Diffuse sources of water pollution can be decreased through green infrastructure elements that prevent stormwater from entering local waterways. The Monroe County Storm Water Environmental Education Team (SWEET) maintains a [Green Spots website](#) where residents and businesses may report on environmentally beneficial efforts such as stormwater filtration and soil erosion prevention. Of the 36 Green Spots currently reported on the website, about 15 of these projects involve green infrastructure. In the next five years, Bloomington will increase the number of green infrastructure elements in the community, particularly in areas near impaired water bodies.

STORMWATER AND WASTEWATER MANAGEMENT

CBU is responsible for stormwater and wastewater management inside the incorporated city area, which can have significant impacts on the quality of local water bodies. The City has a separate stormwater and sewer system to help prevent sewer overflows in the event of heavy precipitation events. While wastewater is treated by the City, stormwater is not treated and flows directly into surface waters. The U.S. EPA requires that the City's Municipal Separate Storm Sewer System employ the following minimum control measures to reduce pollutants:

- public education programs and engagement efforts
- detection and elimination of illicit discharges
- controls for construction site run-off
- controls for post-construction stormwater management
- pollution prevention initiatives for municipal operations¹⁸

CBU meets these requirements through the following programs:

- The Stormwater Art Project: students create artwork and stencils to paint storm drains

WHAT YOU CAN DO

- ✓ **Get a free home water conservation kit** from CBU, complete with low-flow faucet aerators and showerheads.
- ✓ **Take simple steps to conserve water at home:** look for WaterSense products, turn off the water when brushing your teeth, and fix leaks.
- ✓ **Dispose of chemicals (motor oil, gasoline, antifreeze, solvents, paints, pesticides) and pharmaceutical products properly.** Don't pour them down the drain, onto the ground, or into the storm sewer — they end up in our waterways.



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located at common public event venues to prevent illicit discharges

- Storm Drain Marking Program: volunteers mark storm drains with “Dump No Waste, Drains to Stream” to prevent illicit discharges and educate the public about stormwater management
- Adopt-a-Stream Project: volunteers perform water quality tests, remove trash and invasive plants, install erosion control measures, and report suspicious activity near the stream
- Hoosier Riverwatch: volunteers monitor Indiana rivers via a state-run program

- Participation in public events, including Bug Fest, Peden Children’s Farm Festival, and Leonard Springs Nature Days
- Working with the local school and university systems to educate and partner with teachers, staff and students
- Efforts to detect and eliminate illicit/illegal discharges
- Controls for stormwater management
- Training for city employees

Wastewater directed to the sanitary sewer system is processed at one of the City’s wastewater

GOAL 6.4: Increase the number of green infrastructure features in the Bloomington community to improve stormwater quality, compared to a 2019 baseline

ACTION		LEAD PARTNERS	TIMEFRAME	COST
6.4.a	Establish a 2019 baseline for the number of community green infrastructure features designed to improve stormwater quality by encouraging the community to report green infrastructure on the Green Spots or other relevant website	Planning & Transportation, CBU, SWEET	2019	\$
6.4.b	Evaluate the development of a SMART goal for increasing the number of community green infrastructure features, per the development of a 2019 baseline	Planning & Transportation, CBU	2020	\$
6.4.c	Develop an educational program and hands-on demonstrations teaching resident responsibility regarding stormwater management, best practices for stormwater pollution prevention, and financial assistance programs ¹⁹	CBU, Parks & Recreation, SWEET	2020	\$\$*
6.4.d	Conduct rain garden, stormwater and green infrastructure tours ²⁰	CBU, Planning & Transportation, SWEET, Parks & Recreation	2021	\$*
6.4.e	Offer stormwater billing credits for residents who implement green infrastructure projects ²¹	CBU	2021	\$\$*



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treatment plants (WWTPs) – Blucher Poole or Dillman Road. Blucher Poole has a processing capability of 4.5 million gallons per day and processes wastewater from the northern area of Bloomington. Dillman Road has a processing capability of 15 million gallons per day and processes wastewater from the southern part of the city and nine large industrial facilities.

To minimize burdens on WWTPs, the City sets limits on the strength of industrial wastewater and requires that industrial facilities “pretreat” their wastewater prior to releasing it into the public sewer system. Restaurants in Bloomington must install grease catchment systems and maintain records of their cleaning schedule, given that fats, oils, and grease (FOG) can create blockages and backups in the sewer treatment system. CBU also has a FOG educational program for residents,

including distribution of fat trapper bags, food scrapers, and grease can lids. In August 2018, CBU completed a \$6.9 million project to improve the sanitary sewer infrastructure along South Walnut Street from Davis Street to Gordon Pike to prevent sanitary sewer overflows.

In the event of a system failure or a heavy precipitation event, the City has — on occasion — released untreated sewage into the environment. In 2016, the City had 26 sanitary sewer overflows, 10 in 2017, and 17 in 2018. In the next five years, Bloomington will work to increase awareness of homeowner responsibilities for stormwater management, to encourage citizens to report illicit discharges, and to make needed improvements in stormwater infrastructure.

GOAL 6.5: Decrease the number of impaired water bodies in Monroe County by 2023, compared to a baseline number of 21 in 2016

	ACTION	LEAD PARTNERS	TIMEFRAME	COST
6.5.a	Expand educational programs to educate residents, businesses and schools about stormwater management responsibilities and issues using the “Only Rain Down the Drain” campaign as reference ²²	CBU, SWEET	2019	\$\$*
6.5.b	Engage in marketing efforts to increase participation in voluntary stormwater pollution prevention programs ²³	CBU	2019	\$*
6.5.c	Develop UReport mechanism for reporting of illicit discharges and promote citizen reporting capability ²⁴	CBU, Monroe County Stormwater	2020	\$
6.5.d	Inventory and begin necessary infrastructure improvements to the stormwater system ²⁵	CBU, Monroe County Stormwater	2020	\$\$\$\$*



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GOAL 6.6: Eliminate all chronic sewer overflow locations, up to a certain magnitude storm event (exact metric to be determined by CBU staff)

ACTION		LEAD PARTNERS	TIMEFRAME	COST
6.6.a	Continue to be vigilant about grease and sewer inspections to prevent one-time overflow events	CBU	2019	\$\$*
6.6.b	Invest in an Inflow and Infiltration Program to eliminate leaks in sewer mains	CBU	2020	\$\$*
6.6.c	Implement a Clear Water Program, possibly including ordinance changes, to eliminate illicit connections of sump pumps, downspouts and other illegal connections to sanitary sewers	CBU	2020	\$\$\$\$*
6.6.d	Invest in major infrastructure improvements to increase collection capacity and eliminate locations of chronic overflows, e.g. the College Mall Rd. sewer interceptor	CBU	2023	\$\$\$\$*





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SUCCESS Stories



MILLER-SHOWERS PARK

Miller-Showers Park gives many visitors their first glimpse of Bloomington. Before major renovations in the early 2000s, this narrow park between College Avenue and Walnut Street flooded frequently and was seldom used by the public. Today, the park is popular for its jogging trails and public art, and it provides a vital piece of green infrastructure for the city. Large retention ponds collect water from a 170-acre watershed in downtown Bloomington, and natural vegetation helps filter pollutants and slow moving water as it flows into Cascades Creek. In 2004, Miller-Showers Park was awarded a Community Enhancement Award by the Bloomington Chamber of Commerce, and in 2005 it was recognized with the Indiana Urban Forest Council's Outstanding Project Award.



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Notes

1. This estimate assumes that 41 percent of water sold to rural water cooperatives is for residential use.
2. This calculation assumes 75 percent of 2016 sales of 3,953 million gallons occurred within Bloomington city limits (2,964.75 million gallons) and that 2016 Bloomington population was 84,465.
3. Bloomington Environmental Action Plan, 33 and City of Bloomington Utilities Water Conservation Plan, 19 and 21.
4. City of Bloomington Utilities Water Conservation Plan, 23.
5. City of Bloomington Utilities Water Conservation Plan, 19.
6. City of Bloomington Utilities Water Conservation Plan, 23.
7. City of Bloomington Utilities Water Conservation Plan, 24.
8. City of Bloomington Utilities Water Conservation Plan, 24.
9. U.S. Environmental Protection Agency, Ground Water and Drinking Water, <https://www.epa.gov/ground-water-and-drinking-water/national-primary-drinking-water-regulations#Microorganisms>
10. See <https://bloomington.in.gov/utilities/water-quality>
11. See <https://data.bloomington.in.gov/dataset?q=water>
12. City of Bloomington Utilities Department, 2015 Water Quality Report, 2.
13. Michael Glab, Is B-town's Tap Water Safe?: A Full Report, <https://www.limestonepostmagazine.com/is-b-towns-tap-water-safe-a-full-report/>
14. Bloomington Environmental Quality Indicators, 7-8.
15. Indiana's 2016 Integrated Water Monitoring and Assessment Report, <https://www.in.gov/idem/nps/4014.htm>
16. Bloomington Environmental Quality Indicators, 7-8.
17. Monroe County Soil and Water Conservation District, <http://www.monroecoswcd.org/local-conservation-projects/>
18. Bloomington Environmental Quality Indicators
19. A similar action was recommended during the SAP Environmental Quality and Natural Systems working group discussions.
20. A similar action was recommended during the SAP Environmental Quality and Natural Systems working group discussions.
21. A similar action was recommended during the SAP Environmental Quality and Natural Systems working group discussions.
22. A similar action was recommended during the SAP Environmental Quality and Natural Systems working group discussions.
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