Joliet Community Water Conservation Plan

City of Joliet, IL
August 2022

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1 Abbreviations and Acronyms

WCSG	Water Conservation Stakeholder Group
HOA	Homeowners' Association
IDPH	Illinois Department of Public Health
ISTC	Illinois Sustainable Technology Commission
EPA	United States Environmental Protection Agency
CMAP	Chicago Metropolitan Agency for Planning
BMP	Best Management Practices
IDNR	Illinois Department of Natural Resources

2 Background

2.1 Background

The city of Joliet's (City's) current water source, the deep aquifer, will not be able to meet maximum day water demands by 2030. The City completed a comprehensive analysis of alternatives and selected Lake Michigan water purchased from the City of Chicago as the most sustainable and reliable water source for the City and surrounding region[1]. The City is committed to being a good steward of Lake Michigan water, which is a precious resource relied upon by multiple states and provinces. To this end, the City has implemented multiple water conservation initiatives and recognizes the importance of involving the Joliet community in these efforts.

The City has developed this plan for its community members, including businesses and residents, to use as a tool to help conserve water and in doing so reduce their utility bill. This plan builds upon the past work by predecessor work groups, including the Water Conservation Subcommittee. The Subcommittee created the groundwork for this plan to become a reality[2]. It also produced a list of initiatives to create and develop, as well as conducted a water audit of City Hall via the Illinois Sustainable Technology Center (ISTC). The Subcommittee developed and implemented rain barrel and low-flow toilet rebate programs with the help of CMAP's 2050 Water Conservation Best Management Practices (BMP)[3]. It also recommended adoption of the Greenest Region Compact[4], a framework for action across all city departments, which was approved unanimously by the City Council in 2019. The Subcommittee's work paved the way for a new Water Conservation Stakeholder Group (WCSG) to advise the creation and implementation of this plan.

2.2 Purpose

This plan exists as a tool for Joliet community members to conserve water and decrease their water and sewer utility bill. The City has also outlined several strategies that it will take to spread water conservation awareness and educate its residents (see "3.1 Municipal Water Conservation Initiatives"), as well as demonstrate its own commitment to conserving water. These initiatives do not include the Joliet Public Utilities Department's normal operations for infrastructure management, such as nonrevenue water reduction, which are being addressed outside of this plan[5].

[1] For more information about the Alternative Water Source Program, please visit www.rethinkwaterjoliet.org.
[2] The Water Conservation Subcommittee (WCSC) 2018-2019 Annual Report details all the accomplishments of the group.
[3] The Subcommittee evaluated CMAP's 2050 Water Conservation BMPs. The evaluation is attached at the end of the 2018-2019 WCSC Annual Report.
[4] A comprehensive set of goals for a municipality to work towards, as outlined by the Metropolitan Mayors Caucus. Involved communities have access to collaborative projects to accomplish these goals.
[5] For more information, please see the Non-Revenue Water Reduction Strategies at https://www.rethinkwaterjoliet.org/_files/ugd/3961f7_19e23012a555472781f964cb5607755e.pdf

2.3 Process of Development

The City began development of this plan following receipt of its Lake Michigan Water allocation from the Illinois Department of Natural Resources (IDNR) in September 2021. Joliet hired a summer intern dedicated to developing the plan, and a Water Conservation Stakeholder group was created to help advise the City and provide feedback to improve the plan. Initial ideas were compiled from research of other municipal water conservation plans, evaluated for feasibility, and finally included in this plan with a recommended implementation strategy.

3 Description of Initiatives

The initiatives described here were evaluated for inclusion in the recommended implementation strategy. Initiatives were compiled based on review of conservation plans from other municipalities, EPA recommendations, and existing Joliet water conservation initiatives. The initiatives are divided into three categories: municipal, commercial, and residential.

3.1 Municipal Water Conservation Initiatives

These initiatives are based on the City's pledge to continue educating, informing, and encouraging water conservation. The City will implement and maintain these initiatives.

3.1.1 Update and Maintain Water Conservation Information on City Websites

This initiative allows community members to access the latest information pertaining to their water supply and helpful water conservation practices and resources. The City currently provides information related to water conservation best practices and initiatives on the www.RethinkWaterJoliet.org website as well as a page on the City's website, www.Joliet.gov.The websites would be updated and kept current with the latest featured educational materials, the latest water supply news, the annual water conservation report, and other pertinent information.

3.1.2 Perform an Annual Evaluation of the Water Conservation Plan

Under this initiative, the City, with the help of the Water Conservation Stakeholder Group, would evaluate water conservation actions taken over the past year and provide data on what it has accomplished. Based on this data and its conclusions, this plan would be updated with findings, published as a report, and distributed through a newsletter, online, or released jointly with the annual water quality report.

3.1.3 Continue the Public Education Campaign

Joliet is a richly diverse community with many different racial, ethnic, generational, and economic groups. Already, Joliet releases official information in both Spanish and English. The goal is to cross demographic boundaries to educate these diverse groups about water conservation in a way that is meaningful to them. Explaining why water conservation is important is a helpful way to accomplish this goal. These initiatives would supplement and expand the outreach that is already present. The City currently has a robust public education campaign to inform residents about the City's new water source

project and water conservation. This campaign currently includes press releases, monthly eblasts, social media posts, announcements on City billboards, water bill inserts and attendance at community events. Expanding outreach and featuring different resources with water conservation tips, facts, or ideas would enhance the public education campaign and keep the public informed on important water conservation related news. The City would continue its outreach at events the City attends, hosts, or sponsors. At those events, educational materials would be provided for attendees. Employees and water conservation partners would also make themselves accessible at these events to inform community members and answer questions about different water conservation resources that exist and why they are important. Since Joliet is a WaterSense partner, many of those materials may be utilized and distributed during the outreach. Homeowner Associations (HOAs) and Neighborhood Associations are a straightforward way to connect with residents. Since HOAs have email lists of their residents, they can easily pass information from the City directly to homeowners in their community.

3.1.3.1 Partner with Schools & Education Professionals

To enhance the education program, the City would partner with local school districts to make water conservation education available to students. The City would collaborate with the districts to develop and implement a water conservation education program. This curriculum, either in or outside the classroom, would teach students why conservation is important, specific actions that can be taken, and encourage a new generation of people committed to being excellent stewards of water. The City would also partner with educational professionals and develop a water conservation curriculum or workshop for professionals working in Joliet.

3.1.4 Maintain the Rain Barrel Rebate Program and Maintain/Expand the Fixture Rebate Program

Joliet already has a rain barrel and low-flow toilet rebate program but making them more accessible and more widespread would increase those programs' enrollment. The City would streamline the application process without forsaking the integrity of the program to increase accessibility. For fixtures specifically, the program would be expanded to non-single-family facilities, such as apartment complexes, community buildings, business offices, hotels, medical offices, restaurants, retails shops, and schools[6]. The fixtures that offer a rebate would be expanded to urinals, air-cooled ice machines, commercial clothes washers, connectionless food steamers, faucet aerators, pre-rinse spray valves, showerheads, sprinkler nozzles, and smart sprinkler timers[7]. The program would be

[6] Tempe, Arizona has a water conservation program designed specifically for these kinds of facilities and offers incentives to equip them with water-efficient appliances. Find more information at https://www.tempe.gov/government/municipal-utilities/water/water-conservation/rebates.

[7] The Orange County Municipal Water District offers rebates for outdoor water conservation, like drip irrigation and sprinkler nozzles, and indoor rebates for clothes washer and high efficiency toilets. Find more information at https://www.mwdoc.com/save-water/rebates/residential-rebates/.

expanded to encompass promotion at retailers that offer these kinds of appliances, such as a brochure at the entrance to the sections of the store that contain these products.

3.1.5 Maintain the Customer Water Portal

Joliet has launched a new water bill portal that provides real time water usage information. This portal can be used to set alarms that alert the homeowner when a certain threshold of water usage has been reached. The City would maintain this customer portal to continue to promote water conservation in the community.

3.1.6 Benchmark Water Usage Information on Monthly Bills & Develop a Water Calculator

Presenting a property owner's water usage data on their monthly bill in a meaningful way provides the owner the opportunity to evaluate their water consumption and use the tools available to them to improve their water conservation. To accomplish this, the water bill would display the owner's water usage against comparative and relevant data to contextualize the threshold of usage they are in.

3.1.7 Update & Enforce Ordinances to Promote Water Conservation

The City would draft ordinances that promote water conservation. Examples include requiring an automatic shut-off hose attachment when using the hose to water landscaping, restricting laying sod during the hottest months of the year, not allowing overfilled swimming pools or spas, or prohibiting a continuous stream of water to run off into gutters or drains[8]. Already in place, the City restricts lawn irrigation with Joliet water to the hours of 6-10am and 6-10pm and limits even-numbered addresses to water on even days and odd-numbered addresses to water on odd days. Any new or replacement sprinkler systems, plumbing fixtures and fittings, and bathroom fixtures must be WaterSense labeled, commercial car washing facilities must have a water recycling system, and any air-conditioner installed must be closed system only. To be effective, these ordinances must also be enforced.

3.1.8 Create a Water Conservation Incentive Program

The City would create a program for Joliet community members to sign a pledge to reduce their water consumption in exchange for prize eligibility. The program would be like the one developed by Fort Collins, Colorado: the "*Shift Your Water Program*"[9]. There would be several stages of these pledges, such as reducing indoor water usage, installing a rain barrel, fixing leaks, or landscaping with native plants. The City would set a deadline to sign a pledge, encourage users to send in pictures of their rain barrels or

[8] The Northwest Water Planning Alliance has a model outdoor water conservation ordinance that mentions some of the ordinances listed, found at https://www.nwpa.us/reduce-outdoor-water-use.html. The others are found on the San Diego water conservation website, found at https://www.sandiego.gov/public-utilities/sustainability/water-conservation/water-use-restrictions.

[9] Fort Collins, CO, designed a pledge-based water conservation incentive program that steers residents toward tangible and habit-changing actions. View its website here: https://www.fcgov.com/climateaction/shift/.

other water conservation ideas, and then close enrollment for the sweepstakes after the deadline and draw for the winners.

3.1.9 Conduct a Water Audit for All Municipal Buildings

Joliet has already performed a water audit on City Hall as a demonstration of its commitment to water conservation. Performing a water audit on all municipal buildings would allow Joliet to create and tailor a water conservation plan specifically for each building. The highly individualized feedback from the auditors would be easier to implement than sweeping strategies meant for widespread execution. This method would keep the City accountable for its water usage and shows the public that the City is actively conserving water alongside the community.

3.1.10 Develop Water Conservation Recognition Awards Program for Commercial Customers

To encourage businesses to conserve water, the businesses that have excelled in water conservation would be recognized for their efforts. The City would need to develop a set of guidelines or design a program to determine which businesses are succeeding in conservation. The extent of the recognition would be plaques for the business, a mention in the quarterly newsletter, names listed on the Joliet website, or appearing at a City Council meeting for a photo opportunity.

3.1.11 Continue the Water Conservation Stakeholder Group

The City has created and currently leads the Water Conservation Stakeholder Group to assist in creating a water conservation plan and to discuss all topics relevant to the community's water conservation efforts. To continue the group, it would meet at a minimum of quarterly to strategize initiatives and give feedback related to the City's water conservation programs. The City would review their feedback and ideas and apply them to the programs.

3.1.12 Research Grant Opportunities

To assist with the financial burden that comes with program implementation, the City would continue to research potential avenues for federal or state grants. With funds coming from the outside, this initiative allows for broader, more encompassing, and more in-depth programs.

3.1.13 Partner with Other Local Entities

Joliet already works with other organizations, such as Will County, the Joliet Slammers minor league baseball team, Conservation Foundation, Lower Des Plaines Watershed Group, Lower DuPage Watershed Group, and Joliet Junior College, to name several examples. Working with other entities allows the message of water conservation to spread through multiple channels and demographics. A partnership conveys that every involved organization is committed to water conservation and invested in continuing to develop water-saving strategies. To further these partnerships, Joliet would contact the

liaisons for these organizations about their interest in any upcoming or future events and projects and by selectively sponsoring or participating in their events.

3.1.14 Encourage the Use of Graywater

Graywater is wastewater that does not contain fecal contaminants. Such water comes from shower, sink, and clothes washer drains. Functioning graywater systems, to save the amount of potable water used, typically recycle water from these drains and use it to flush toilets and urinals and irrigate lawns and gardens. However, graywater usage is not a widespread practice in Illinois because there is no formal legal definition or regulation of graywater. To encourage the use of graywater, a City employee would first need to lobby for state legislation to modify state plumbing code.

3.1.15 Develop a Water Saver Champion Program

Under this program, invested Joliet residents and community members would volunteer to become a "champion" of their sector and advocate for water conservation activities in partnership with Joliet. These champions would spearhead water conservation awareness in their communities with City-provided materials and tools and encourage their neighborhoods to adopt these conservation actions.

3.2 Commercial Water Conservation Initiatives

Joliet recognizes that the commercial sector is an important part of the Joliet community and has analyzed several water conservation initiatives related to businesses.

3.2.1 Display Water Conservation Information

Businesses in Joliet, particularly hospitality and restaurant businesses, would provide water conservation information cards or post water conservation posters that inform the customer of the business's conservation efforts and explain the adjustment of practices. The cards and displays can be easily designed, but should be visible in the establishment, so that the maximum number of customers receive the message. Even a small mention about why the business chooses a certain practice deepens the customer's understanding of the business's operations.

3.2.2 Conduct Water Audits

Interested businesses and organizations would receive a free ISTC water audit[10] to help them understand their water usage and strategize ways to reduce it. Building owners and businesses are encouraged to participate to tailor their water conservation plan specifically to their needs. It is important to note that ISTC provides one free water audit exclusively to businesses, organizations, and governments.

[10] To learn more or schedule a free on-site visit, go to https://tap.istc.illinois.edu/work-with-us/free-site-visits/. The online request form is linked on the webpage.

3.2.3 Water Conservation Partners Hotels

A group would be created of interested hotel and hospitality industry professionals that partner with the City to promote and practice water conservation in their establishment. The group would implement a program that encourages washing linens for multi-day stay customers on request. They would also discuss displaying the information comprehensively around the establishment and outreach to other businesses.

3.2.4 Water Conservation Partners Restaurants

A group of interested businesses in the restaurant industry would be formed to partner with the City to promote and practice water conservation. The water conservation practices would apply specifically to this industry, and the group would think of new ways to conserve water and decrease water costs. One such idea would be serving water only upon request, a practice that is commonplace at restaurants in California[11] and saves an estimated 730 gallons of water per year[12].

3.2.5 Landscape with Native and Low Maintenance Landscaping

Plants that are native to the climate and environment of Joliet naturally require less water and less maintenance. In total, a switch to native landscaping can save a property owner as much as 47,500 gallons of water per year[13]. It is not only a way to save water, but also a way to beautify gardens, lawns, and landscaping. Creating a lawn full of native plants promotes a biodiverse environment, supports native pollinators, and helps restore the natural ecosystem, along with conserving water.

3.2.6 Track Water Usage with Joliet Water Customer Portal

The Joliet Water Customer Portal has built-in features that are free to use for any Joliet water customer. The portal can be used to set water usage alerts and alarms at the customer's desired water usage thresholds, which allow them to observe their habits and begin to formulate a plan to change them. In addition, the portal displays water used in the current billing cycle against the previous billing cycle for comparison and each meter's water usage data by day and time of day. This information can be used to understand water habits, check for leaks, and set goals to lower the amount of water used.

3.2.7 Switch to WaterSense Licensed Fixtures and Irrigation Systems

Timer-based irrigation systems are not sensitive to the weather, soil saturation, or other relevant data that affect water absorption in soil. As much as 50 percent of water is

[11] "Water Use Restrictions." *San Diego Public Utilities*, City of San Diego, 10 June 2022, www.sandiego.gov/public-utilities/sustainability/water-conservation/water-use-restrictions.

[12] "Water Conservation in Restaurants." *Water Matters,* Southwest Florida Water Management District. https://www.swfwmd.state.fl.us/residents/water-conservation/water-conservation-restaurants. Number based on the water used per glass.

[13] Darilek, Alice, et al. "Water-Smart Landscapes Start with WaterSense." *WaterSense*, EPA, Oct. 2021. https://www.epa.gov/sites/default/files/2017-01/documents/ws-outdoor-water-efficient-landscaping.pdf.

wasted in lawn irrigation because of overwatering[14]. WaterSense, an EPA national voluntary partnership program that offers a way for consumers to identify water-efficient products, provides labels for licensed irrigation controllers that are either weather-based or soil moisture-based. These types of controllers are more sensitive to the absorption of water into the soil. The controllers adjust the irrigation as needed based on more accurate and relevant data.

3.2.8 Participate in Water Conservation Stakeholder Group

The Joliet Water Conservation Stakeholder Group is a group of invested community members that work with the City to promote water conservation in the community. The WCSG provides input on water conservation strategies, reviews the water conservation plan, gives feedback on the City's current water conservation initiatives, and voices opinions about proposed plans and initiatives. The City values the input of the WCSG and believes their ideas to be valuable resources. To become involved, email Public Utilities about your interest at rethinkwater@joliet.gov.

3.2.9 Provide Water Conservation Classes

Professionals in the landscape, plumbing, and other water-related fields would partner with the City of Joliet, the Joliet Park District, or the Joliet Public Library to hold classes focused on water conservation. The classes would outline native landscaping techniques, home plumbing classes, and how to diagnose common leaks. The presentations would provide valuable information to residents and provide marketing opportunities for businesses.

3.3 Residential Water Conservation Initiatives

3.3.1 Participate in Water Conservation Stakeholder Group

The Joliet Water Conservation Stakeholder Group is a group of invested community members that work with the City to promote water conservation in the community. The WCSG provides input on water conservation strategies, reviews the water conservation plan, gives feedback on the City's current water conservation initiatives, and voices opinions about proposed plans and initiatives. The City values the input of the WCSG and believes their ideas to be valuable resources. To become involved, email Public Utilities about your interest at rethinkwater@joliet.gov.

3.3.2 Follow Outdoor Watering Ordinances & Recommendations

Following outdoor watering ordinances such as adjusting lawn watering schedules carries no financial burden on the community other than communications. It is a simple way to save water—according to the EPA, watering in the morning or evening and only

[14] "WaterSense Outdoor Combined Irrigation Controller Fact Sheet." *WaterSense,* EPA, Feb. 2021. https://www.epa.gov/sites/default/files/2021-03/documents/ws-outdoor-combined-irrigation-controller-fact-sheet.pdf

watering when necessary saves 45,000 gallons of water per year for the average family[15]. Some of these practices are required: Joliet has watering ordinances in the summer that restrict the times that lawns may be watered to certain morning and evening times and assigns houses to even or odd numbered watering days based on the address. Others, like watering the lawn only when it needs water, are not. These ordinances are a large step, but they may create the assumption that lawns must be watered every other day, which is not the case. Lawns do not need to be watered every instance watering time is available. By watering only when necessary, the lawn is not overwatered and water is conserved. Irrigation systems that use automation can continue to use water after the season is over if they are still on. Setting a reminder to turn off the irrigation system is another strategy homeowners can use to reduce their water usage and prevent pipe bursts in the winter.

3.3.3 Install Rain Barrels

Rain barrels are a fantastic way to save water and keep yards and gardens green. Installing a rain barrel can save a property owner approximately 1,300 gallons of water per year[16]. The water collected by the barrel can be used to water the lawn at no cost to the homeowner beyond the initial rain barrel investment. There is currently a rebate program for Joliet residents that wish to install rain barrels, because the City recognizes the benefits and costs savings to residents. During education and outreach events, the City also raffles off several rain barrels. An outline of the rain barrel rebate program and a rain barrel ordering link can be found on the Joliet website at www.joliet.gov/rainbarrel.

3.3.4 Landscape with Native Plants and Low-Maintenance Landscaping

Plants that are native to the climate and environment of Joliet naturally require less water and less maintenance. In total, a switch to native landscaping where permitted can save a property owner as much as 47,500 gallons of water per year[17]. It is not only a way to save water, but also a way to beautify gardens, lawns, and landscaping. Creating a lawn full of native plants promotes a biodiverse environment, supports native pollinators, and helps restore the natural ecosystem, along with conserving water.

3.3.5 Attend Water Conservation Classes held by Joliet

Classes allow residents to learn about their water conservation options, how to apply it to their homes, and the cost and benefits of applying the practices. Attending a class organized by the City of Joliet or local businesses and held jointly with other organizations promotes a better understanding of how to make water conservation-based decisions and habits.

[15] "Save Water in the Yard this Summer." *WaterSense*, EPA. https://www.epa.gov/watersense/watersense-summer-infographic

[16] Fiala, Julia. "Saving Water and Money with Rain Barrels." *World Wildlife Fund*, WWF, 16 Dec. 2013. https://www.worldwildlife.org/blogs/sustainability-works/posts/saving-water-and-money-with-rain-barrels.

[17] Darilek, Alice, et al. "Water-Smart Landscapes Start with WaterSense." *WaterSense*, EPA, Oct. 2021.

3.3.6 Switch to WaterSense Licensed Fixtures and Irrigation Systems

Timer-based irrigation systems are not sensitive to the weather, soil saturation, and other relevant data that affect water absorption in soil. As much as 50 percent of water is wasted in irrigation because of overwatering[18]. WaterSense, an EPA national voluntary partnership program that offers a way for consumers to identify water-efficient products, provides labels for licensed irrigation controllers that are either weather-based or soil moisture-based. These types of controllers are more sensitive to the absorption of water into the soil. The controllers adjust the irrigation as needed based on more accurate and relevant data. Making this switch can save an average home up to 15,000 gallons of water every year[19]. Joliet is a WaterSense partner and has implemented a low-flow toilet rebate program for older constructions that may still be equipped with older, less efficient water fixtures and appliances. New construction in Joliet requires the use of WaterSense fixtures; however, older homes may still have less efficient fixtures. Replacing these appliances and fixtures with newer, more efficient fixtures reduces the amount of water each uses, saving up to 16,400 gallons of water annually[20]. Nicor Gas offers a free water saving kit to customers[21]. This kit includes 1-2 high efficiency showerheads, 1-2 bathroom faucet aerators, 1 dual-spray kitchen faucet aerator, a shower timer, and plumber's tape. ComEd also offers virtual or in-person energy audits, which include a water section, to single family homes that receive ComEd electricity[22].

3.3.7 Reduce Indoor Water Use

This initiative is a simple habit fix. Turn off the faucet while brushing teeth, when washing dishes, when washing cars, and in other instances where running water is not being used for anything. It costs nothing to the community members but saves water and reduces water costs. Reducing a shower by 2 minutes, a specific way that homeowners can lower their water bills, prevents potable water from being wasted. For an average family, shortening shower times can save up to 2,700 gallons per year[23], which is 230 gallons per month. The steps for homeowners to take include tracking showers, learning trends, and then devising plans to reduce shower time. Home leaks add up over time. The EPA estimates that household leaks add up to about 10,000 gallons of water over one year per family[24]. By maintaining the integrity of home fixtures, replacing worn or old parts, and remaining vigilant for leaks, water is conserved, and consumer water bills are less expensive and reflect only water use. Several informative resources already exist to assist in troubleshooting and fixing leaks, but one of the most important things about this

[18] "WaterSense Outdoor Combined Irrigation Controller Fact Sheet." *WaterSense*, EPA, Feb. 2021.
[19] "WaterSense Outdoor Combined Irrigation Controller Fact Sheet." *WaterSense*, EPA, Feb. 2021.
[20]"Residential Toilets." *WaterSense*, EPA, 23 May 2022.; "Showerheads." *WaterSense*, EPA, 23 May 2022.; "Bathroom Faucets." *WaterSense*, EPA, 23 May 2022. https://www.epa.gov/watersense/watersense-products.
[21] More information can be found on the Nicor Gas website, https://www.nicorgas.com/residential/ways-to-save/free-products-and-services.html
[22] To schedule a virtual or on-site visit, go to https://www.comed.com/WaysToSave/ForYourHome/Pages/SingleFamily.aspx.
[23] "4 Ways to Measure a 5-Minute Shower." *Green Harvard*, Harvard University. https://green.harvard.edu/tools-resources/green-tip/4-ways-measure-5-minute-shower.
[24] "Fix a Leak Week." *WaterSense*, EPA, 13 July 2022. https://www.epa.gov/watersense/fix-leak-week#:~:text=Mark%20your%20calendars%20for%20EPA's,and%20money%20all%20year%20long.

initiative is familiarizing property owners with their indoor plumbing system. Many do not know how to diagnose a running toilet or where their water meter and shut-off valve are. Having a basic understanding of the inner workings of a property's plumbing increases confidence in troubleshooting and fixing leaks.

3.3.8 Track Water Usage with Joliet Customer Water Portal

The Joliet Water Customer Portal has built-in features that are free to use for any Joliet water customer. The portal can be used to set water usage alerts and alarms at the customer's desired water usage thresholds, which allow them to observe their habits and begin to formulate a plan to change them. In addition, the portal displays water used in the current billing cycle against the previous billing cycle for comparison and each meter's water usage data by day and time of day. This information can be used to understand water habits, check for leaks, and set goals to lower the water used.

4 Process of Determination

4.1 Feasibility Process & Matrix

The initiatives were evaluated against the following set of criteria as shown in the matrix provided as Appendix B: water saved, community impact, direct cost, initial labor effort, maintenance labor effort, how long to implement, coordination effort (1-5), and implementation difficulty (1-5). Potential funding sources and resources connected to each initiative were also listed. Every proposed initiative was individually evaluated according to each of the criteria. Not all initiatives will be recommended at this time.

- Water saved per year was calculated with data from the EPA[25], the World Wildlife Fund[26], Green Harvard[27], and the Graywater Action Campaign[28].
- The community impact was determined based on the population that would be impacted by the initiative. Choices included: whole community, active community, property owners, businesses, schools, residents, or professionals. Active community is defined as community members active in promoting water conservation.
- Direct cost was determined based on estimates of each program's materials, labor, and venue.
- Initial labor effort was calculated based on an estimate of the number of hours the initiative would require to implement.

[25] https://www.epa.gov/watersense/watersense-products
[26] https://www.worldwildlife.org/blogs/sustainability-works/posts/saving-water-and-money-with-rain-barrels
[27] https://green.harvard.edu/tools-resources/green-tip/4-ways-measure-5-minute-shower
[28] https://greywateraction.org/wp-content/uploads/2016/11/Greywater101.pdf

- Maintenance labor effort was calculated based on an estimate of the number of hours per month the initiative would require to sustain.
- Implementation length is an estimate of when the program would be ready for the community. The possible rollouts were categorized as either short-term, mid-term, or long-term.
- The coordination effort was ranked on a scale of 1 to 5: 1-little effort, 2-a bit of effort, 3-some effort, 4-more effort, 5-lots of effort.
- Implementation difficulty was evaluated based on the following scale: 1-easy 2-simple, not easy, 3-neither simple nor easy, 4-hard, 5-difficult.

5 Conclusion & Recommendations

Based on the feasibility of each initiative, the recommended initiatives for 2023 are listed below. Other initiatives will be evaluated in the future for implementation past 2023. Based on the 2022 evaluation, the estimated cost is $21,000.

5.1 Recommended Municipal Initiatives

5.1.1 Update and Maintain Water Conservation Website

5.1.1.1 *Implementation strategy: Work with the public relations contractor to refresh the Rethink Water website and add new resources for water conservation. Gather materials from the current website, readily available resources, and other organizations and present to public in a user-friendly way.*

5.1.1.2 *No cost associations.*

5.1.2 Perform an Annual Evaluation of the Water Conservation Plan

5.1.2.1 *Implementation strategy: Track water conservation activities, accomplishments, and stages of implementation throughout the year. Analyze the data with the help of the WCSG. Compile information into an annual public-facing report.*

5.1.2.2 *No cost associations.*

5.1.3 Continue Public Education Campaign

5.1.3.1 *Implementation Strategy: Update social media with educational and promotional water conservation information. Include water conservation information and tools in e-blasts, emails, and newsletters. Research and contact individuals in school districts that may be willing to collaborate to add a water conservation lesson to existing curricula or activities.*

5.1.3.2 *Estimated Cost: $2,000*

5.1.4 Maintain the Rain Barrel Rebate Program and Maintain/Expand the Fixture Rebate Program

5.1.4.1 *Implementation strategy: Continue promotion of both programs by highlighting them at Public Outreach Events, features on the website, and mentions in the e-blasts. Swiftly and accurately process rebate requests. Evaluate the possibility of adding fixture rebate program promotions in fixture retailers by finding a contact, asking questions, and reviewing business guidelines.*

5.1.4.2 *Estimated Cost: $10,000*

5.1.5 Maintain the Customer Water Portal

5.1.5.1 *Implementation strategy: Perform frequent maintenance on the platform. Promote it as a useful tool for understanding water usage habits and planning to change those habits.*

5.1.5.2 *Estimated Cost: $8,000*

5.1.6 Create a Water Conservation Incentive Program

5.1.6.1 *Implementation strategy: Research example programs. Ask the developers of those programs about their development process. Design a Joliet program and decide the desired water conservation practices, prizes, and promotion campaign. Aggressively promote the program by e-blasts, mailouts, mentions at events, and featuring winners on the website.*

5.1.6.2 *Estimated Cost: $500*

5.1.7 Continue the Water Conservation Stakeholder Group

5.1.7.1 *Implementation strategy: Advertise the group to interested parties. Schedule regular meetings. Develop an agenda and a long-term plan. Continue to engage stakeholders in Joliet water conservation.*

5.1.7.2 *No cost associations.*

5.1.8 Research Grant Opportunities

5.1.8.1 *Implementation strategy: Designate an individual or group of individuals to investigate available state and national grants. Check in frequently with their progress.*

5.1.8.2 *No cost associations.*

5.1.9 Partner with Other Local Entities

5.1.9.1 *Implementation strategy: Maintain relationships with current partners by contacting frequently and collaborating on events and campaigns. Research other partners in the community and contact them for interest.*

5.1.9.2 *No cost associations.*

5.1.10 Develop a Water Saver Champion Program

5.1.10.1 *Implementation strategy: Advertise the program to relevant demographics. Reach out to potential "champions" to know their level of interest. Encourage them to volunteer. Once found, provide them with the materials, tools, and backing that will prepare them for success in their advocacy.*

5.1.10.2 *Estimated Cost: $500*

5.2 Recommended Commercial & Residential Initiatives

The City recommends that its businesses, residents, and community members adopt all their respective water conservation initiatives listed in this plan. Water is a valuable resource and implementing these actions will ensure water is available not only for the people of today, but those of tomorrow as well.

6 Acknowledgements

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Feedback from the City of Joliet Water Conservation Stakeholder Group was incorporated into this report.

Contributing Stakeholders:

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7 Appendices

Appendix A: Referenced Plans

- Elmhurst, IL: Sustainable Elmhurst, found at https://www.boarddocs.com/il/coe/Board.nsf/files/AWGRVT6398EF/$file/Elmhurst%20Sustainability%20Action%20Plan%20Proposed%20Final%20Draft%20March%202018.pdf
- Naperville, IL: Environmental Sustainability Plan, found at https://www.naperville.il.us/globalassets/media/sustainability/2010-sustainability-plan.pdf
- Fort Collins, CO: Water Efficiency Plan, found at https://watercenter.colostate.edu/wp-content/uploads/sites/91/2019/04/City-of-Fort-Collins-Water-Efficiency-Plan-City-of-Fort-Collins.pdf; Water Conservation Annual Report, found at https://www.fcgov.com/utilities/img/site_specific/uploads/21-23060-water-conservation-annual-report-v5.pdf?1649440657
- Bloomington, IN: Sustainability Action Plan—Chapter 6, Water, found at https://bloomington.in.gov/sites/default/files/2018-10/Ch6-Water-BtnSAP-18-FINAL.pdf
- Oak Park, IL: PlanitItGreen: Oak Park River Forest Sustainability Plan, found at https://www.oak-park.us/sites/default/files/environment-related/planit-green-plan-2011.pdf
- McHenry County, IL: Water Resources and Action Plan, Section 2, Chapter 7, Water Conservation and Efficiency, found at https://www.mchenrycountyil.gov/home/showpublisheddocument/101365/637413880900100000 from pages 130-on.
- Will County, IL: Will County Green Energy and Conservation Plan, found at https://acrobat.adobe.com/link/review?uri=urn:aaid:scds:US:46c2078b-b9ac-3534-b7fd-dec7e540840e

Appendix B: Feasibility Matrix

Water Conservation Plan Feasibility Matrix

	Initiative	water saved	community impacted	Direct Cost	Initial Labor Effort	Maintenance Labor Effort	Implementation Schedule	Coordination Effort (1-5)	Implementation Difficulty (1-5)	Possible Funding Source	Resources
	Municipal										
3.1.1	Update and Maintain Joliet Water Conservation Information on City Websites		active community	$ -	8 hrs	2 hrs/month	short-term	3	2	water and sewer fund	https://www.joliet.gov/government/departments/public-utilities/water-conservation/water-conservation-tips
3.1.2	Perform an Annual Evaluation of the Water Conservation Plan		active community	$ -		60 hrs/year	mid-term	5	4	water and sewer fund	
3.1.3	Continue the Public Education Campaign		whole community	$ 2,000.00	36 hrs	16 hrs/month	mid-term	4	4	water and sewer fund, council grant	
3.1.4	Maintain the Rain Barrel Rebate Program and Maintain/Expand the Fixture Rebate Program		property owners	$ 10,000.00	8 hrs	4 hrs/month	short-term	2	2	water and sewer fund	https://www.joliet.gov/government/departments/public-utilities/customer-programs/rain-barrel-program
3.1.5	Maintain the Customer Water Portal		property owners	$ 8,000.00		4 hrs/month	short-term	3	3	water and sewer fund	Customer Water Portal Information | City of Joliet, IL
3.1.6	Benchmark Water Usage Information on Monthly Bills & Develop a Water Calculator		property owners	$ 1,500.00	16 hrs		short-term	2	2	water and sewer fund	
3.1.7	Update & Enforce Ordinances to Promote Water Conservation		whole community	$ -	16 hrs	2 hrs/month	long-term	5	5	water and sewer fund	
3.1.8	Create a Water Conservation Incentive Program		active community	$ 500.00	16 hrs	2 hrs/month	long-term	4	4	council grant	Shift - City of Fort Collins (fcgov.com)
3.1.9	Conduct a Water Audit for All Municipal Buildings		active community	$ 12,276.00	16 hrs	2 hrs/month	mid-term	3	2	council grant	
3.1.10	Develop Water Conservation Recognition Awards Program for Commercial Customers		businesses	$ 500.00	20 hrs	4 hrs/month	long-term	4	3	council grant	
3.1.11	Continue the Water Conservation Stakeholder Group		whole community	$ -		16 hrs/month	mid-term	2	2	water and sewer fund	
3.1.12	Research Grant Opportunities		whole community	$ -	20 hrs	2 hrs/month	long-term	1	2	water and sewer fund	
3.1.13	Partner with Other Local Entities		whole community	$ -	20	4 hrs/month	long-term	5	4	water and sewer fund, council grant	Will County Green | Home Page, https://www.jic.edu/node/5076, https://www.theconservationfoundation.org/,
3.1.14	Encourage the Use of Graywater	15000 gal/yr	property owners	$ -	40 hrs	2 hrs/month	long-term	5	5	water and sewer fund	
3.1.15	Develop a Water Saver Champion Program		homeowners	$ 500.00	20 hrs	10 hrs/month	long-term	4	4	volunteer	
	Commercial										
3.2.1	Display Water Conservation Information		businesses		8 hrs	1 hr/month	mid-term	3	2	business budget	
3.2.2	Conduct Water Audits		businesses		10 hrs	2 hrs/month	mid-term	3	3	business budget	
3.2.3	Water Conservation Partners Hotels		businesses	cost savings	8 hrs	2 hr/month	short-term	1	1	business budget	
3.2.4	Water Conservation Partners Restaurants	730 gal/yr	businesses	cost savings	4 hrs		short-term	4	2	business budget	
3.2.5	Landscape with Native and Low Maintenance Landscaping	47450 gal/yr	property owners	varies, then cost savings	8 hrs	2 hrs/month	short-term	3	2	homeowner budget	
3.2.6	Track Water Usage with Joliet Water Customer Portal		property owners		N/A	5 hrs/month	short-term	1	2		Customer Water Portal Information | City of Joliet, IL
3.2.7	Switch to WaterSense Licensed Fixtures and Irrigation Systems	15000 gal/yr + 16400 gal/yr	property owners		16 hrs		mid-term	2	3	business budget	https://www.epa.gov/watersense
3.2.8	Participate in Water Conservation Stakeholder Group		active community			2 hrs/month	mid-term	2	3	Volunteer	
3.2.9	Provide Water Conservation Classes		businesses, homeowners		20 hrs	2 hrs/month	mid-term	3	4	volunteer, park district, library, business	
	Residential										
3.3.1	Participate in Water Conservation Stakeholder Group		active community			2 hrs/month	mid-term	2	3	Volunteer	
	Conduct Water Audits		property owners		10 hrs		mid-term	3	3		https://www.comed.com/WaysToSave/ForYourHome/Pages/HomeEnergySavings.aspx
3.3.2	Follow Outdoor Watering Ordinances & Recommendations	45000 gal/yr	property owners				short-term	3	1	part of education	
3.3.3	Install Rain Barrels	1300 gal/yr	property owners	$40, then cost savings	2 hrs		short-term	1	2	homeowner budget, city rebate	
3.3.4	Landscape with Native and Low Maintenance Landscaping	47450 gal/yr	property owners	varies, then cost savings	8 hrs	2 hrs/month	short-term	3	2	homeowner budget	
3.3.6	Switch to WaterSense Licensed Fixtures and Irrigation Systems	15000 gal/yr + 16400 gal/yr	property owners		10 hrs	4 hrs/month	mid-term	2	3	homeowner budget	https://www.epa.gov/watersense
3.3.7	Reduce Indoor Water Usage	12740 gal/yr	property owners				short-term	2	1	homeowner budget	
3.3.8	Track water usage with Joliet Water Customer Portal		property owners				short-term	1	2		Customer Water Portal Information | City of Joliet, IL
3.3.5	Attend Water Conservation Classes held by Joliet		whole community								
			Total Direct Costs:	$ 21,000.00							

implementation	1	2	3	4	5
difficulty	easy	simple, not easy	not simple nor easy	hard	difficult

coordination	1	2	3	4	5
effort	little	a bit	some	more	lots

Recommended for 2023

Not Recommended for 2023