Metropolitan Planning Council

Drinking Water Academy


# VILLAGE OF ROBBINS

## Water Priorities Report

December 2020

## ACKNOWLEDGMENTS


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### Drinking Water 1-2-3 initiative partners

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## ABOUT MPC

Since 1934, the Metropolitan Planning Council (MPC) has been dedicated to shaping a more equitable, sustainable, and prosperous greater Chicago region. As an independent, nonprofit, nonpartisan organization, MPC serves communities and residents by developing, promoting, and implementing solutions for sound regional growth.

# TABLE OF CONTENTS

# EXECUTIVE SUMMARY

The Village of Robbins applied and was selected for the Metropolitan Planning Council's Drinking Water 1-2-3 Technical Assistance program. The primary deliverable in the Scope of Work is this priorities report to inform the village's water-related capital improvements, as well as operations and maintenance considerations.

The intended strategy for arriving at the following list of priorities was to conduct up to three in-person meetings with stakeholders working with the village on water supply issues. However, with the onset of the COVID-19 pandemic, the original plan was revised: MPC conducted phone calls with the village's water consultants and contractors to discuss past work and future priorities and hosted one virtual group meeting during which the compiled project list was discussed and finalized.

The resulting list of Robbins water priorities is as follows:

1. **Annual priorities**
   - Conduct ongoing operations and maintenance (fix leaks, exercise valves, etc.)
   - Conduct water loss audit (LMO-2 and M36)
   - Conduct master meter testing
2. **Projects currently underway**
   - Complete meter installation and replace older meters
   - Ensure effective switch to new meters and new billing software
   - Develop lead service line inventory and replacement plan
3. **Future priorities**
   - Construct new pump station, install a SCADA system, paint elevated tank at Claire Boulevard Station
   - Replace non-functioning or partially-functioning hydrants
   - Conduct full system leak survey
   - Update water atlas and line locating
   - Conduct valve exercising program
4. **Other**
   - Establish an emergency backup connection to neighboring water utility
   - Adopt a capital improvement plan

These projects will support the following goals for the water system in Robbins, which were identified through the development of this report (Note: This list is not in ranked order):

- Provide safe drinking water to customers;
- Pay for the water used in the village;
- Repair pump stations and reservoirs;
- Improve the village's fire suppression capabilities; and
- Pay outstanding balance to the City of Chicago.

Safe drinking water is the bedrock of any community. It is required for public health — which has become even more evident during the current pandemic. It is necessary for local businesses and industries, and a sustainable supply of water supports a growing population and other economic development initiatives. There is virtually no aspect of life that water does not touch.

Water utilities, however, face a variety of challenges, including aging infrastructure, a changing climate and other environmental stressors, population change, new regulations, and, perhaps most importantly, financial constraints. Deferring replacement, though, will result in much higher costs in the long run, for customers as well as the utility. Efficient and timely planning will help avoid sky-rocketing costs in the future.

Complete implementation of these recommendations will require years and significant financial investments. Various funding options are discussed, including the State Revolving Fund — a low-interest loan program administered by the Illinois Environmental Protection Agency designed to support water service infrastructure repair and replacement. Ultimately, this report meets the goal of presenting elected officials and staff with a consensus-based list of water priorities so that the village is prepared to apply for grants and other funding sources when they become available.

# PROJECT BACKGROUND

## HOW TO USE THIS REPORT

The purpose of this report is to assist elected officials and staff in the Village of Robbins in making informed decisions regarding the municipality's water infrastructure. This report provides a consensus-based prioritization of projects and can be used in decision-making related to allocation of funds, project selection, and when pursuing grants and other funding opportunities.

## MPC'S WATER RESOURCES PROGRAM

Northeastern Illinois' proximity to the abundant resources of the Great Lakes and access to multiple rivers and underground aquifers mean that we generally enjoy ample water. While our region's water assets are considerable, they are also finite — in the case of Lake Michigan, governed by a Supreme Court Decree — and are facing a multitude of challenges due to infrastructure age, fragmented system management, and potential contamination. As climate change advances, shorter duration but increasingly intense and more frequent storm events — much of which cannot infiltrate nor evapotranspirate because of storm intensity and urban land use decisions — overwhelm stormwater infrastructure, which is undersized and aging. The result is negative impacts for humans, aquatic ecosystems, and the ecosystem services they provide from Chicago to the Mississippi River and beyond. These realities jeopardize both public health and economic growth.

In response to these challenges, the Metropolitan Planning Council's Water Resources program uses research, advocacy, education, and technical assistance to: 1) ensure clean, equitable, and abundant drinking water; 2) prevent flooding and improve water quality; 3) facilitate and encourage stewardship of our natural assets; and 4) foster social, economic, and environmental benefits within communities.

## DRINKING WATER 1-2-3 INITIATIVE

Drinking Water 1-2-3 is a collection of initiatives which assist communities in the Chicago metropolitan area with water-related issues. The Metropolitan Planning Council (MPC) released the *Drinking Water 1-2-3* guide (drinkingwater123.metroplanning.org), designed for elected officials and local leaders to help communities take the necessary steps to ensure livability through quality drinking water service.

In 2019, MPC launched the Drinking Water 1-2-3 Academy to assist with continued education and training for community officials and establish a peer network where learning and coordination can take place. To assist with on-the-ground technical assistance projects, which implement many of the best practices featured in the guide, MPC administers the Drinking Water 1-2-3 Technical Assistance program. Throughout 2020, MPC has coordinated expert services to help three communities, including the Village of Robbins, tackle their most pressing drinking water needs.


# PLANNING PROCESS

The Village of Robbins applied to the Drinking Water 1-2-3 Technical Assistance program and was selected to fulfill the following scope:

## SCOPE OF WORK

1. **Produce a water planning priorities report**
2. **Develop a strategy for public education materials and meetings**
3. **Convene up to three meetings with stakeholders working with the village on water supply issues**

## ROLES AND DELIVERABLES

1. **Produce a water planning priorities report**

   Purpose: To identify what projects related to water supply are currently underway, and what projects are needed, and to develop a pathway toward implementation.

   Task: MPC and its consultant(s) will work with village staff and other relevant stakeholders to analyze what has been done to date to operate, maintain, or upgrade the village's water supply infrastructure, and identify ongoing, upcoming, and planned projects to develop a strategy and highlight opportunities for targeted implementation. All aspects of capital improvement projects related to water supply will be explored — including but not limited to pumping station(s), water tower(s), full implementation of automatic meter reading, water loss audit, and leak detection — to understand the system's current condition and plan for capital improvements.

   Deliverable: Completion of a water planning priorities report

2. **Develop a strategy for public education materials and meetings**

   Purpose: To explore ways to communicate to community stakeholders the value of water, the costs associated with operations and maintenance, and the need to attend to the system.

   Task: MPC will conduct a search of nationwide best practices in educational materials and public engagement, and work with village staff to determine what materials and strategies may already exist and be applicable, could be repurposed, or should be developed for the village.

   Deliverable: Completion of written recommendations and a plan for village staff and officials

3. **Convene up to three meetings with stakeholders working with the village on water supply issues**

   Purpose: To fully understand the current state of the village's water supply infrastructure and collaboratively create a plan for capital improvements.

   Task: Based on recommendations from tasks completed under roles and deliverables from #1 (above), MPC will work with village staff to convene relevant stakeholders — such as representatives from Robinson Engineering, M.E. Simpson, Calumet City Plumbing, Metropolitan Industries, and others — for up to three in-person meetings and all relevant phone calls, emails, and coordination between meetings.

   Deliverable: Completion of up to three stakeholder meetings

## REVISED PROCESS

In the course of preparing this report, in addition to elected officials and staff with the Village of Robbins, MPC and Lewis & Associates LLC spoke with the following individuals:

- Patty Gleason, Alexander Chemical
- Michael Giglio, Calumet City Plumbing
- Darin Skutt, Carus
- Randy Lusk, M.E. Simpson
- Keith Girup, Metropolitan Industries
- Ron Smith, Robinson Engineering

However, with the onset of the COVID-19 pandemic, the original plan of "[convening] up to three meetings with stakeholders working with the Village on water supply issues" had to be modified. Instead of conducting in-person meetings, the project team transitioned to 1-on-1 phone calls with the village's water consultants and contractors, followed by a single group meeting conducted via a virtual meeting platform.

## PLANNING CONTEXT

The Village of Robbins is a historically Black municipality located in south Cook County, Illinois. The village was incorporated in 1917, and its first mayor was a Black man named Thomas J. Kellar. Early residents were primarily Black families who moved north to Chicago during the Great Migration and later settled in Robbins, which was quieter and less crowded.[1, 2] In the decades after World War II, an increase in nearby manufacturing jobs and better wages resulted in rapid population growth.[3] At its peak, the population of Robbins was 9,641 individuals, according to the 1970 decennial Census.[4] The 1970s, however, saw a collapse in regional manufacturing. As Robbins residents moved elsewhere in search of work, many of the businesses that existed during the period of peak population closed, and most have not been replaced.

The current population is 5,003 individuals, which represents a continued decline in population numbers, even dropping 24.6 percent between 2000 and 2018.[5] Among that population, 85.2 percent is Black non-Hispanic, 6.1 percent is Hispanic or Latino, and 5.6 percent is White non-Hispanic. Anecdotally, the percentage of Hispanic or Latino households is on the rise and not represented in these estimates.[6] Median Household Income (MHI) is $26,804, which is significantly lower than the Cook County MHI of $62,088.[7] Housing statistics also trend lower as compared with county data, with 78.9 percent of housing units occupied and a 38.7 percent homeownership rate (compared with 91.4 percent and 58.4 percent, respectively, for Cook County).[8]

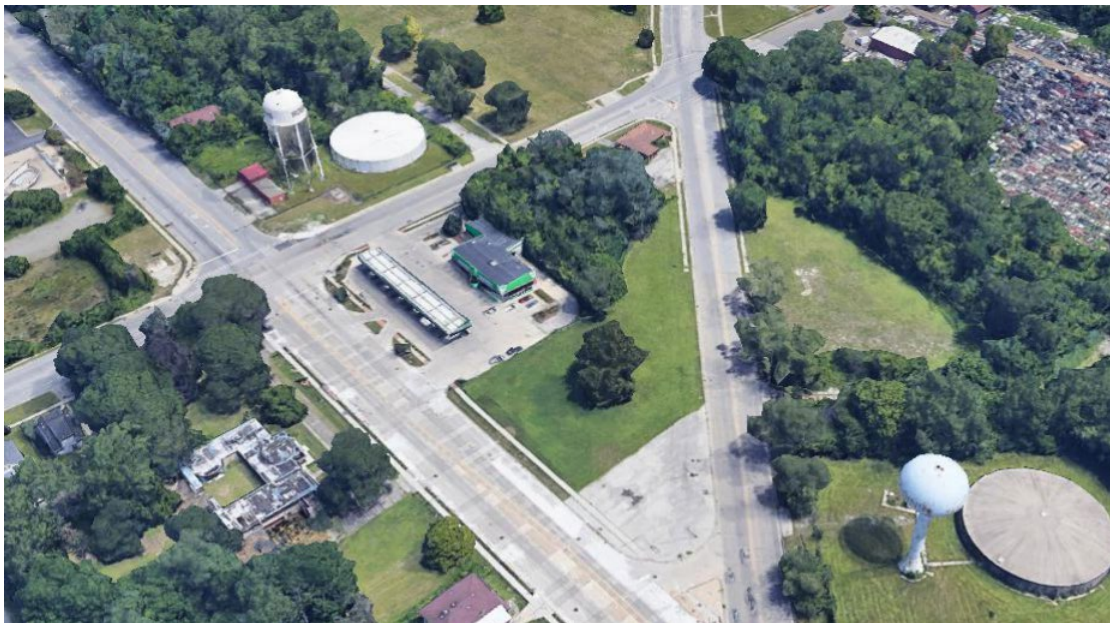
The Village of Robbins comprises 927.3 total acres (see Fig. 1). Among these, Transportation represents the highest percentage of land use (35.4 percent), followed by Vacant (28.6 percent) and Single-Family Residential (26.1 percent). The majority of housing in Robbins is Single-Family, Detached (69.5 percent).[9]

Fig. 1. Municipal boundaries of the Village of Robbins[10]

## WATER SYSTEM OVERVIEW

The Village of Robbins purchases treated Lake Michigan water from the City of Chicago. The water is chlorinated again and pumped into water reservoirs at the Kedzie Pumping Station and, under normal circumstances, the Claire Boulevard Pumping Station (Fig. 2). The Kedzie Pumping Station has a 250,000-gallon elevated storage tank and a 1,000,000-gallon ground reservoir, both of which are online. The Claire Boulevard Pumping Station has a 300,000-gallon elevated storage tank, which is online, and a 1,500,000-gallon ground reservoir. This ground reservoir is currently offline; it has no power, and the pumps need to be replaced. The elevated tanks provide pressure for the system.

Fig. 2. Kedzie Pumping Station (left) and Claire Boulevard Pumping Station (right)[11]



Wastewater is conveyed to the Metropolitan Water Reclamation District of Greater Chicago (MWRD). No lift stations or treatment are required; wastewater is treated at an MWRD facility.

There are an estimated 427 fire hydrants, but many were knocked over and not replaced, or they are damaged for some other reason, such as a problem with their valves.

Robbins' water supply system has 2,186 total service connections, and, according to the 2019 Illinois Environmental Protection Agency (IEPA) Service Line Material Inventory Reports, all are of an unknown material.[12] By January 1, 2021, the Village is required to have an accurate lead service line inventory.

## PUBLIC WORKS DEPARTMENT

The Robbins Public Works Department includes the Water Department and the Streets and Sanitation Department and is staffed by two volunteers with additional support from Trustee Bernard Ward (who, prior to retirement, spent many years as the Public Works Director). Before

the COVID-19 pandemic, Robbins had a Director of Public Works, but, at the time this report was written, there was no director.

When water main breaks occur (which is generally seasonally) Robbins hires an external contractor for emergency call-outs. Additionally, the village contracts with a certified water operator to monitor the pumping station.

## WATER RATES

Utility bills include charges for water, sewer, and garbage. For the water portion of the bill, a flat rate is currently in place for all residential customers. Seniors are charged a discounted rate. Once Robbins has completed water meter installation, a metered rate structure reflecting actual usage will go into effect. Robbins expects that the metered rate will result in lower bills for most customers, but those with major leaks will likely see an increase.

In anticipation of full meter installation, the new rate structure has already been established. This rate reflects the current cost of the service but does not account for the increased capital needed for upcoming major maintenance, upgrades, and replacement, nor the balance owed to the City of Chicago for unpaid water bills and associated penalties.

The Board of Trustees has a Water Committee with three trustees, including Trustee Ward, who will discuss these issues — though their meeting schedule, as well as that of the larger Board, has been impacted by the pandemic. This committee also intends to discuss what to do about residents (and, germaine to the present report, water ratepayers) who have been impacted by pandemic-related job loss.

The Water Committee's goal is to maintain a public conversation regarding resident concerns and other feedback. The Metropolitan Planning Council, as Part 2 of their scope of work, will continue exploring ways to communicate to community stakeholders the value of water, the costs associated with operations and maintenance, and the need to attend to the system.

## PRIOR PLANNING FOR ROBBINS' WATER SUPPLY

The Village of Robbins' current comprehensive plan was adopted on September 25, 2007, and lists objectives in the categories of Land Use, Community Facilities and Services, Transportation, and Economic Development. The Community Facilities and Services section includes a recommendation to "Repair, replace and maintain the Village's infrastructure".[13]

Specifically, the objectives include the following (cited verbatim):

- Upgrade existing water, sanitary and storm sewer systems to accommodate more intensive development, where necessary.
- Utilize a geographic information system (GIS) to inventory existing water, sanitary and storm sewer systems, and to identify a community-wide maintenance and replacement schedule.
- Accommodate advancements in technology for other utilities such as energy and telecommunications industries.

"Water Towers and Distribution" are mentioned under the Capital Improvements section of the Implementation and Action Agenda chapter, which reads as follows:

> Complete the water meter installation process. Repair and replace water main valves and broken fire hydrants to provide better water service and fire protection. The 12-inch water main loop in the Village needs to be completed, if not done so already. Consider replacing the water tower at Claire Boulevard and Kedzie Avenue with a new water tower on the west side of the Village to provide better water pressure on the west side of town. If the choice is not to relocate the tower, then the underground controls should be moved to a location above ground. New, larger water mains will be needed to accommodate areas of increased water demand.

The recommendations in the current planning process are consistent with these objectives.

# WATER

## IMPORTANCE OF WATER

Safe drinking water is the bedrock of any community. It is required for public health — which has become even more evident during the current pandemic. It is necessary for local businesses and industries. And a sustainable supply of water supports a growing population and other economic development initiatives. There is virtually no aspect of life that water does not touch.

Despite this, today's water utilities face a variety of challenges. These include aging infrastructure, potential contamination from road salts and stormwater runoff, a changing climate and other environmental stressors, growing populations, new regulations, and, perhaps most importantly, financial constraints. Read more at: drinkingwater123.metroplanning.org.

## ATTENDING TO THE SYSTEM

Since its initial, expensive implementation during the 20th century, the nation's water infrastructure has remained largely out of sight and out of mind. Much of this vital infrastructure is now approaching the end of its useful life. According to the American Water Works Association (AWWA), "we are coming face-to-face with a serious challenge that could become a crisis if we ignore it."[14]

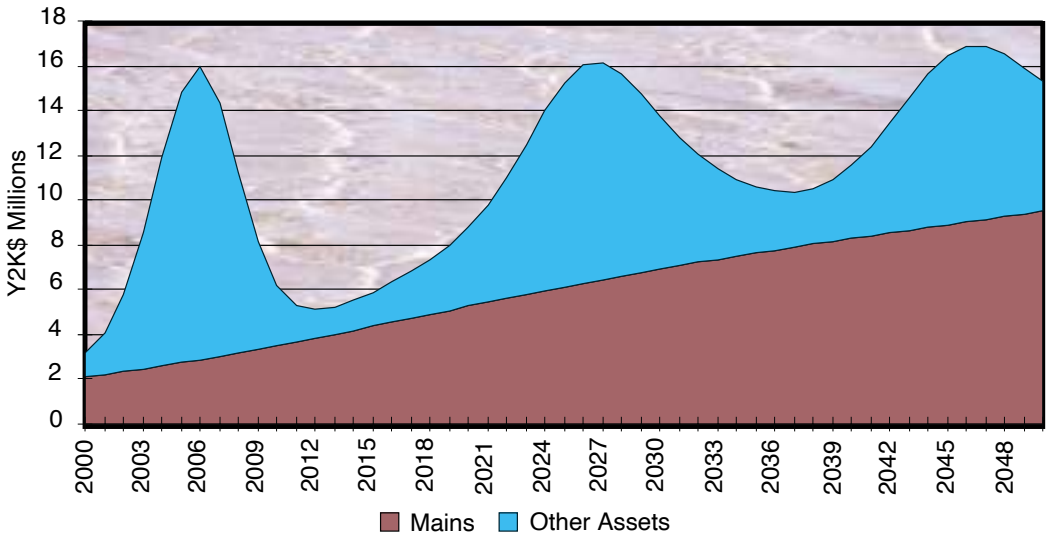
Aging public water systems will require significant investment, and costs will vary by region and locality depending on the age and material of the infrastructure. Efficient and timely planning will help avoid sky-rocketing costs in the future. Cost projection models published by AWWA show "Nessie" curves — named for their visual similarity to the Loch Ness Monster — which illustrate future increases in total replacement and repair costs. The analysis shows that "we can estimate the timing and magnitude of that obligation"[8] by modeling demographic data

and knowing the life expectancy of pipes. These visualizations of a water system's trajectory of infrastructure aging and expenditure show:

[The] deferral of replacement will produce higher overall costs due to increased repairs than would be the case if replacement occurred on time. If replacement is deferred too far beyond the economic trade-off point between replacement and repair costs, the repair cost burden will spiral upwards and have significant impacts on utility cash flows. Such a scenario will indeed impair a utility's ability to repay debt.[8]

Fig. 3 is an example of this projected scenario of the concurrent need to finance both pipes and treatment plants. "Mains" represents pipe replacement as these gradually age and eventually break. "Other Assets" includes water treatment plants, pumping stations, etc. which will require large investments and have shorter lifespans than the mains.

**Fig. 3. Example Nessie Curve, showing the pattern of replacement costs for water infrastructure through 2050[15]**




This example Nessie Curve shows "the manner in which spending for the replacement of pipes rises like a ramp over the first part of the century, pushing up the overall level of annual expenditure required."[8] Then in Figs. 4 and 5 below, there are two actual Nessie Curve projections of annual water infrastructure replacement costs in Columbus, Georgia.

These graphs predict increased costs for individual households and total replacement costs for the utility, respectively. The costs are expected not only to increase in the foreseeable future, but the overall cost will vary in waves, depending on the local demographic changes and condition of the infrastructure.[8] In short, deferring replacement will have a much higher cost in the long run, for customers as well as the utility. Researchers assert that, "the bad news is [...] as large as the cost of reinvestment may be, not undertaking it will be worse in the long run by almost any standard."[9]

Fig. 4. Projected per household expenditures due to wear-out ($/hh/yr)[16]

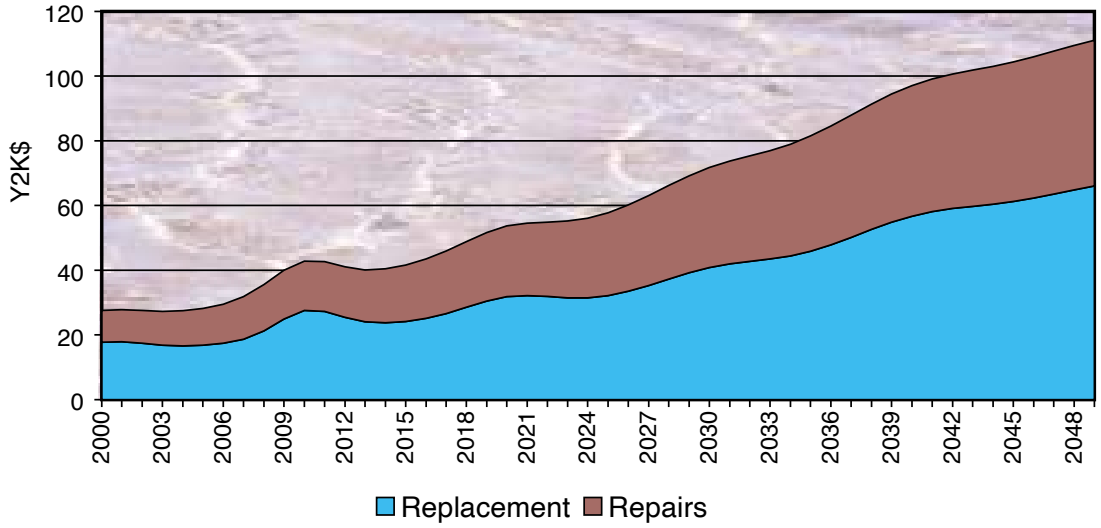
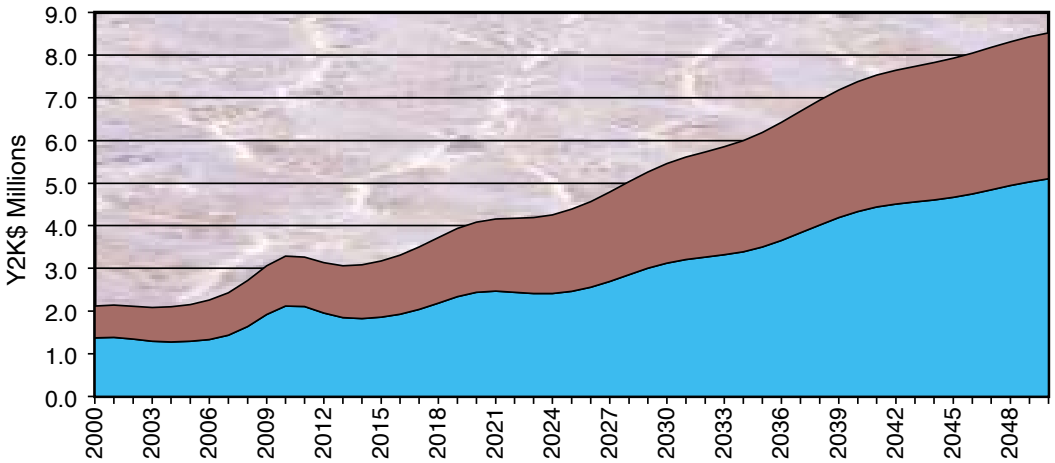



Fig. 5. Projected total expenditures due to wear-out[16]




**Key message**

The vast underground network of water systems across the U.S. has been revolutionary in its ability to distribute clean drinking water, but funding for repair and replacement of this vital infrastructure must be prioritized to secure public health and safety. To ensure that communities continue to have unrestricted access to safe drinking water, large investments will be required. While the state and federal governments have a significant role to play in financing water infrastructure replacement and repair, it is imperative that municipalities begin to make plans of their own.


# WATER PRIORITIES

## PRIMARY CONCERNS

Through conversations with Village Administrator Keith Freeman and Trustee Bernard Ward, and with input from the village's contractors and consultants, the following goals for the water system in Robbins were identified (this list is not in ranked order):

- Provide safe drinking water to customers;
- Pay for the water used in the village;
- Repair pump stations and reservoirs;
- Improve the village's fire suppression capabilities; and
- Pay outstanding balance to the City of Chicago.

## PRIMARY RECOMMENDATIONS

During conversations with Village staff, officials, and other relevant stakeholders, a variety of recommendations surfaced and were prioritized. The following primary recommendations were grouped into projects that should be conducted annually, projects that are currently underway and should be completed, and major investments that should be prioritized in the coming years. See the appendix for a decision support matrix which compares these projects in terms of costs, benefits, and difficulty to implement.

### Annual priorities

#### Conduct ongoing operations and maintenance

- Project description – Fix leaks, exercise valves, etc.
- Project benefits – Robbins must pay for the water the village receives from the City of Chicago, even water lost through leaks. Robbins cannot recoup the cost of this water if it is lost prior to passing a customer's water meter; customers are not charged, and yet

Robbins must pay Chicago. Identifying and repairing leaks can yield major cost savings. Additionally, valves must be regularly exercised to prevent corrosion or other build-up. If left undone, a valve can seize in the open, partially open, or shut position, resulting in issues related to pressure and flow, as well as an inability to close off parts of the system for repairs.

### Conduct water loss audit (LMO-2 and M36)

- Project description – Conduct annual LMO-2 submissions and M36 water audits. The LMO-2 is the annual water loss reporting form required of all Lake Michigan permittees. The LMO-2 is populated using data compiled using the AWWA's Free Water Audit Software.
- Project benefits – The M36 methodology helps water utilities identify "real losses" (related to water that enters the distribution system but never reaches a user because of water main breaks, service line leaks, etc.) and "apparent losses" (related to water that reaches a user but is not properly measured or paid for due to billing errors, meter inaccuracies, etc.) The M36 guide provides users with instructions both for how to identify major water losses and how to develop a plan to control those losses.

### Conduct master meter testing

- Project description – Conduct annual testing to ensure the validity of measurements by the master meter. The transmission main that conveys water from the City of Chicago to the Village of Robbins is measured by Chicago via a master meter. Annual master meter testing ensures validity of the amount of water being supplied to Robbins. The village began this testing in 2018 and again in fall 2019 in response to the lawsuit pertaining to unpaid water bills.
- Project benefits – Master meter testing is a vital part of an accurate water audit. Because water audits compare discrepancies between water sold and water supplied, a small discrepancy in the master meter can result in inaccuracies of the audit and hinder a utility's ability to identify and reduce non-revenue water.

**Projects currently underway**

### Complete meter installation and replace older meters

- Project description – Complete full metering of the village, and test meters installed in the 1990s. Robbins received a grant and began water meter installation and meter vault replacement during the 1990s. The funding was insufficient to complete full metering of the municipality, and another grant in the 2000s allowed more meters to be installed. The project was on track for 2020 completion, but the pandemic caused delays. If necessary, replace non-functioning meters.
- Project benefits – When meter installation is complete, Robbins can switch from a flat rate to a metered rate that charges customers for the amount of water they consume.

### Ensure effective switch to new meters and new billing software

- Project description – Older meters must be tested and, when necessary, replaced. New meters must be installed for unmetered customers. Once complete, the billing system needs to be switched over to new software. Once all of those steps have been taken, work with a consultant to ensure the switch to metered rates occurs without inaccuracies. A missing or misplaced zero can result in large-scale inaccuracies, for example, and, therefore, special attention must be paid to ensure a smooth transition.
- Project benefits – It cannot be assumed that switching billing systems and billing rates will be without complications. Taking extra precautions to validate new data and processes will ensure accurate costs are reflected in customer bills, thereby preventing under- or over-billing.

### Develop lead service line inventory and replacement plan

- Project description – Identify the location of lead service lines within the village, and develop an inventory of locations. Develop a plan that prioritizes vulnerable populations and lays out a timeline for replacement.
- Project benefits – While paint, dust, and soil are the most common sources, lead can be found in some water pipes (i.e., service lines) that connect buildings to a water main. Lead is toxic. Exposure in children can lead to decreased IQ, reduced growth and hearing, attention deficit disorder, and other problems. In adults, exposure increases the risk of heart attack, high blood pressure, kidney failure, and more. Identifying the location and number of lead service lines and making a plan to replace them are vital steps in overcoming this major threat to public health.

## Future priorities

### Upgrade and repair offline pumping station

- Project description – Construct a new pump station, install a SCADA system, and paint the elevated tank at Claire Boulevard Pumping Station. Claire Boulevard Pumping Station and its reservoirs are currently inoperable. Construct a new pumping station, and (although a lower priority) repaint the elevated tank. Additionally, install a supervisory control and data acquisition (i.e., SCADA) system and remote terminal units to monitor the system at the Claire Boulevard Pumping Station.
- Project benefits – Of the two pumping stations in Robbins, one is completely offline. Bringing the Claire Boulevard Pumping Station back online increases reservoir capacity and ensures adequate pressurization of the system. Furthermore, having a second operable pumping station will protect the village in the event the Kedzie Pumping Station goes offline.

### Replace non-functioning or partially-functioning hydrants

- Project description – Of Robbins' estimated 427 fire hydrants, repair or replace the 50 to 100 which are partially or fully inoperable. Many of these were knocked over and

not replaced, or they are damaged for some other reason, such as a problem with their valves. Replacement parts can be exorbitantly expensive, and, often, full replacement is the more cost-effective option. Restoration of asphalt, concrete, auxiliary valves, etc. is also a part of this project.

- Project benefits – Increasing the number of working fire hydrants will increase fire suppression capabilities for Robbins.

### Conduct leak survey

- Project description – Hire a trained surveyor to use a listening device to identify and repair leaks in water system pipes, valves, and other connections throughout the water distribution system. (Note: this is different from a water audit, such as AWWA's M36 methodology which uses data to identify water losses.)
- Project benefits – Identifying and fixing leaks is a quick way to recover water loss. It is best to conduct this survey regularly to find small leaks before they become big ones.

### Update water atlas and line locating

- Project description – Using GPS locating and a geographic information system (GIS), update the water atlas, i.e., the detailed map showing the location of water infrastructure. Robbins' most recent water atlas is more than 10 years old. Many drawings are incomplete and lack geographical details. For example, recent work has identified valves coming off feeder lines that the village was unaware of. In other cases, some valves were found to be closed (perhaps they were closed to fix a main break and accidentally not opened), which can lead to dead ends and low-flow conditions.
- Project benefits – Accurate information about the location of infrastructure improves the efficiency and accuracy of water system monitoring and maintenance.

### Conduct valve exercising program

- Project description – A typical street has at least two valves, depending on the length of street. Conduct a valve exercising program, which entails moving each one through its full range of motion and returning it to an open position. This prevents corrosion and other deposits that can limit valves' usefulness.
- Project benefits – Regular valve exercising ensures reliable operation. Fully functional valves are required for adequate flow, pressurization, and to accommodate repair work. This program would identify and reopen closed valves. This work can be combined with a full system leak survey and line locating.

## Other recommendations

### Establish emergency backup connection to neighboring water utility

- Project description – Robbins previously had an emergency backup connection with the City of Blue Island and another connection to the Village of Midlothian, to whom Robbins used to sell water. Reestablish the emergency connection to Blue Island's water distribution system, or negotiate an emergency connection to Midlothian.

- Project benefits – With only one pumping station currently online and no emergency connection, Robbins' could experience significant water access problems in the event the Kedzie Pumping Station goes offline. Once the Claire Boulevard Pumping Station is back online, as recommended above, this project becomes less of a priority but should still be considered.

### Adopt a capital improvement plan

- Project description – Develop and adopt a multi-year capital improvement plan that identifies priorities for capital improvements and investments in equipment to supplement this water priorities report.
- Project benefits – This prioritized list of water infrastructure expenditures will always compete against the village's other capital needs, including buildings and transportation infrastructure. A more complete picture of planned investments in upcoming years will allow Village officials to make informed decisions.

# FUNDING

Implementation of these recommendations will take time and, of course, money. The intent of this document is for the Village of Robbins to be well situated to apply for grants or stimulus funding if and when it becomes available. Often, though, these funding sources require a percentage of matching funds from the applicant.

Setting water rates that accurately reflect the full cost of providing water service is one step toward paying for necessary upgrades and replacement in addition to costs related to ongoing operations and maintenance. Other funding options discussed below include the Drinking Water State Revolving Fund, tax increment financing, and more.

## WATER RATE STRUCTURE

A public utility can utilize rates to fund infrastructure projects. However, communities with predominantly low- to moderate-income residents often cannot bear rate increases sufficient to fund major infrastructure improvements. To avoid rate shock and prepare for water infrastructure replacement over the coming decades, incremental, long-term rate increases are recommended.[17]

Full-cost water pricing sets rates that are sufficient both to encourage water conservation among water users and to provide utilities with revenue to pay for long-term infrastructure needs. Determining the “full cost” of water requires that a utility have a solid understanding of their budget and capital improvement needs. As such, full-cost water pricing is part of larger initiatives to get the utility on sound financial footing. For more information, “Full-Cost Water Pricing Guidebook for Sustainable Community Water Systems” is an invaluable resource.[18]

## STATE REVOLVING FUND

The State Revolving Fund (SRF) is a low-interest loan program designed to support water service infrastructure repair and replacement. Each year, Congress appropriates funds to the SRF, and the U.S. EPA proportionally distributes these funds to each state based on a regular Needs Assessment. Illinois combines these federal dollars with required state matching funds, program repayments, bond proceeds, and interest on loans to generate a perpetual source of loan money dedicated to water supply, wastewater, and stormwater infrastructure needs. The Illinois EPA (IEPA) administers the SRF.

The SRF's Public Water Supply Loan Program, created in 1997, addresses the requirements of the Safe Drinking Water Act by providing funding for drinking water treatment, storage, and distribution systems. Applicants must submit a funding nomination form and obtain planning approval prior to March 31 annually. Projects are subsequently scored and ranked, and the selected projects are added to the Intended Funding List, with funds distributed on or after July 1. More information is available at www2.illinois.gov/epa/topics/grants-loans/state-revolving-fund.

Certain Disadvantaged Communities can qualify for a special interest rate, principal forgiveness, and longer repayment terms. In 2019, Disadvantaged Communities could get a 1.0% interest rate, 75% principal forgiveness up to $1.5 million, or 30-year repayment terms, depending on certain criteria. Specifically, as follows:

- Small Community – "Service population must be less than 25,000 and one of the following criteria must be met; MHI less than the State MHI; or an unemployment rate greater than State average; or annual user charge greater than 1.0% of applicant's MHI."
- Hardship – "Service population must be less than 10,000 and one of the following criteria must be met; MHI less than 70% less than the State MHI; or an unemployment rate 3% greater than State average: or annual user charge greater than 1.5% of applicant's MHI."[19]

The interest rate, principal forgiveness, and longer repayment terms for Disadvantaged Communities will likely be revised for 2021. For more information, contact IEPA's Infrastructure Financial Assistance Section at (217) 782-2027 or Section Manager Gary Bingenheimer at Gary.Bingenheimer@illinois.gov.

## REBUILD ILLINOIS

In 2019, the State of Illinois passed "Rebuild Illinois," a bipartisan infrastructure and jobs plan worth $45 billion.[20] The funds were to be allocated across various capital development projects, including transportation, water infrastructure, and neighborhood revitalization. Applications are closed for the 2020 cycle, but targeted programs included competitive Shovel Ready Sites, Regional Economic Development, Public Infrastructure, and Fast-Track Public Infrastructure.

The  Fast-Track Public Infrastructure component aimed to accelerate projects to stimulate the economy by boosting employment and investment during the COVID-19 pandemic.[21] The Village of Robbins applied to this program to fund water infrastructure projects including a new pump station, tank, and installation of data monitoring devices. Read more at https://www2.illinois.gov/dceo/CommunityServices/CommunityInfrastructure/Pages/RebuildIllinois_Programs.aspx.

## TAX INCREMENT FINANCING

Sales tax revenue and additional property taxes from a tax increment financing (TIF) district can be utilized to fund water infrastructure projects within those same TIF districts.[22]

## OTHER

In Madison, Wisconsin, the water utility rented out space on top of their water towers to cell phone companies as a way to generate revenue for water infrastructure repairs and replacement.[23]

# CONCLUSION

The Village of Robbins, along with other municipalities throughout the country, are facing many challenges in providing safe, clean, sustainable drinking water. Among these challenges, the most common concerns are aging infrastructure, and financing repairs and replacement. This report provides a consensus-based list of water priorities for the Village of Robbins, compiled based on conversations with the Village's water-related consultants and contractors, several of whom have been supporting Robbins for many years. Although the required capital expenditures associated with these water priorities are significant, inaction will result in higher costs down the road.

Ultimately, the elected officials and staff of the Village of Robbins must weigh the needs of the village's water system against other capital investments, such as transportation and stormwater infrastructure. These decisions are never easy, particularly when balanced with other important considerations such as residents' overall tax burden and fiscal policies that promote commercial development. This reality adds further weight to the recommendation to develop and a adopt a capital improvement plan.

As part two of their scope of work, the Metropolitan Planning Council will continue to support the Village Board of Trustees and Water Committee to explore ways to communicate with community stakeholders the value of water, the costs associated with operations and maintenance, and the need to attend to the system.

# APPENDIX

## DECISION SUPPORT MATRIX

The following table provides key information Robbins will need to consider when making decisions about the water projects recommended in this report. It is important to note that all of these projects are needed. By providing this list, which is ranked in order of priority and includes key factors associated with each project — estimated cost, benefit, and level of difficulty — the intent is to support public officials and staff in Robbins in implementing the recommended projects.

| Priority | Type | Project | Cost | Benefit | Difficulty |
|---|---|---|---|---|---|
| 1 | Annual | Ongoing operations and maintenance (fix leaks, exercise valves, etc.) | $ 50,000.00 | High | Medium |
| 2 | Annual | Conduct water loss audit (LMO-2 and M36) | $ 3,000.00 | Medium | Low |
| 3 | Annual | Conduct master meter testing | $ 3,000.00 | Low | Low |
| 4 | In progress | Complete meter installation and replace older meters | $ 300,000.00 | High | High |
| 5 | In progress | Ensure effective switch to new meters and new billing software | $ 1,000.00 | High | High |
| 6 | In progress | Develop lead service line inventory and replacement plan | $ 16,000,000.00 | Medium | Medium |
| 7 | Future | Construct new pump station, install a SCADA system, paint elevated tank at Claire Blvd Station | $ 2,700,000.00 | High | High |
| 8 | Future | Replace non-functioning or partially-functioning hydrants | $ 1,000,000.00 | High | High |
| 9 | Future | Conduct full system leak survey | $ 8,000.00 | Medium | Low |
| 10 | Future | Update water atlas and line locating | $ 20,000.00 | Low | Low |
| 11 | Future | Conduct valve exercising program | $ 15,000.00 | Medium | Medium |
| 12 | Other | Emergency backup connection to neighboring water utility | $ 50,000.00 | High | High |
| 13 | Other | Adopt a capital improvement plan | $ 20,000.00 | High | High |

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