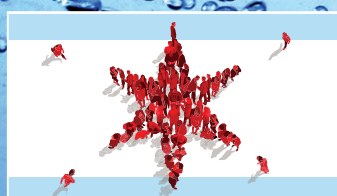


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FORUM

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Find your town's water source on an interactive map showing where it comes from and how much it costs.

PLUS: View a slideshow on the city's water issues. ChicagoBusiness.com/CrainsForum

TREADING WATER

Blessed with abundance, Chicago battles complacency and a rising tide of concerns.

SECTION BEGINS ON PAGE 19

Big banks stall out in Chicago market

One homegrown player is eating their lunch with (surprise!) new branches

BY STEVE DANIELS

Banking services are a commodity, but there's striking new evidence suggesting Chicagoans increasingly prefer them delivered with a local touch.

Growth in retail deposits at the biggest banks in town was underwhelming or nonexistent in the year ended June 30, ac-

cording to the annual snapshot of deposit market-share data released Sept. 13 by the Federal Deposit Insurance Corp. Meanwhile, Rosemont-based Wintrust Financial, which markets itself as "Chicago's bank," emphasizing its local roots in contrast to the out-of-town headquarters of its biggest rivals, saw deposits in the six-county Chicago area grow by 14 percent. That capped a four-year stretch in which Wintrust's deposits grew 39 percent.

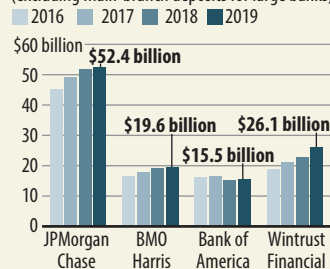
See **BANKS** on Page 33

BUY LOCAL?

After years of steady growth, the biggest banks appeared to struggle to add retail customers over the past year. Rosemont-based Wintrust's deposits, meanwhile, exploded.

CHICAGO-AREA DEPOSITS

(excluding main-branch deposits for large banks)



Note: Data is for the six-county Chicago area. When main-branch deposits are included, Wintrust is the fourth-largest by deposits in 2019. Source: Federal Deposit Insurance Corp.

Rivian recharges Illinois auto plant

Amazon truck order gives state a shot at electric-vehicle market

BY CLAIRE BUSHEY

On the outskirts of downstate Normal stands Illinois' best shot to latch onto the electrification trend that will, at some point, transform the auto industry.

Plymouth, Mich.-based Rivian acquired a 2.6 million-square-foot former Mitsubishi car factory for \$16 million two years

ago with plans to crank out electric-powered pickup trucks and SUVs for the luxury market by late 2020. Since then it's picked up an additional \$1.55 billion in funding, Amazon has ordered 100,000 delivery trucks, and Normal city officials have rechristened a road previously named for the Japanese automaker as "Rivian Motorway."

In Normal, Rivian hopes to become the first manufacturer to consistently produce reliable electric vehicles profitably at

See **RIVIAN** on Page 12

CRAIN

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JOE CAHILL

Advice for Jimmy John's new owner: Don't fix what's not broken. **PAGE 4**



FLOSSMOOR

A look at the suburb that boasts the strongest housing market of 2019. **PAGE 8**



FORUM

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WATER

DIVE DEEPER

WHERE DO YOU GET YOUR WATER?

Go to an online map and tap on your town to see where your water comes from and how much it costs.

ChicagoBusiness.com/watersource

TREADING WATER

Despite an abundance, Chicago strains to keep its head above rising problems

INSIDE

TAKEN FOR GRANTED

Complacency about our plentiful water is catching up with us.

PAGE 20

For an online slideshow, go to:
ChicagoBusiness.com/treadingwater

COLLAR COUNTIES FAST DEPLETING GROUNDWATER

Joliet is among more towns turning toward Lake Michigan as a water source.

PAGE 22

WATER WILL SHAPE CHICAGO'S ECONOMIC FUTURE

But the city is yet to capitalize on the "blue economy" amid conservation and other assets.

PAGE 26

VIEWS FROM WATER EXPERTS, PLANNERS AND ACTIVISTS

Recommendations for planning, strategy, equity and "green" solutions.

PAGES 21, 24-26



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Complacency, climate change and other concerns leave our water's future less certain

In many ways, Chicago enjoys a unique privilege in not having to worry about its water—where it comes from, and where it goes when we're done with it.

Lake Michigan looks limitless from our shoreline. For a century, since we reversed the Chicago River, we've avoided returning our wastewater where it comes from, like other Great Lakes cities do, instead sending it west to the Mississippi River.

Our complacency is now catching up with us. The abundance has allowed the city and region to remain inattentive or unhurried about problems that ultimately affect access and supply, such as aging and leaky pipes, contaminants like lead, inequitable water rates, thirsty sprawl and groundwater depletion.

With climate change, those issues are multiplying, giving our most precious resource a less certain future than we think.

"Water is both everywhere and nowhere in our lives and our economy," says Steve Frenkel, former director of Current, a Chicago joint venture that encourages water innovation. "It's essential and ubiquitous, but we take it for granted and don't properly value it."

Some believe our region needs a more clear vision and more coordinated strategy for managing all elements of our water system. Different agencies oversee different aspects, and haven't always cooperated efficiently.

The U.S. Supreme Court has upheld the reversal of our river and our lake water diversion. If that ever changed, we would lose the exception that's made us the envy of other Great Lakes cities.

So, what will our unique water system look like in 30 years? And will we always be able to so casually depend on it?

Nothing to take for granted.

Hugh Dellios



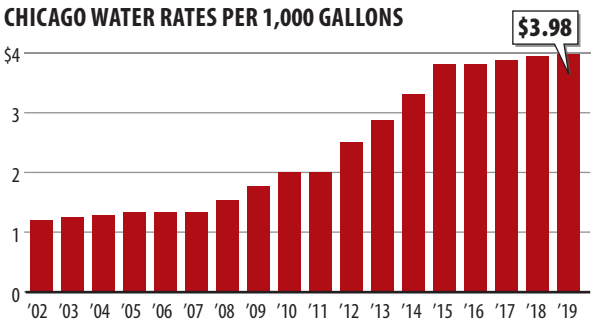
STEPHEN J. SERIO



STEPHEN J. SERIO

Many of our underground pipes date back to the era of Teddy Roosevelt and leak billions of gallons a year. Replacing them is costing the city billions of dollars.

The price of water in Chicago has tripled in recent years, falling hardest on the poor. In May, Mayor Lori Lightfoot halted the "heartless" shut-offs of households that weren't paying their bills.



Source: City of Chicago



STEPHEN J. SERIO

Unchecked growth and drought are exacerbating the depletion of groundwater aquifers, from Chicago's collar counties to drier agricultural areas across the Midwest. Joliet, the state's third-largest city, is predicted to run out of groundwater in a decade and is among more and more communities eyeing Lake Michigan as a source.

Recent tests showed harmful lead in some drinking sources, leading the city to hire a consultant to study solutions. The mayor's transition committee recommended an expensive lead pipe replacement program.



NEWSCOM

Increasingly intense storms are becoming the norm, dumping more water in places we don't want it and pushing more untreated wastewater into the lake. Poorer communities inevitably suffer most because of inadequate infrastructure.



GETTY IMAGES

For environmental reasons—including stopping the voracious, invasive Asian carp from making its way into our waterways—some argue we should re-reverse the Chicago River. The Army Corps of Engineers has studied how to do it.

'Water Wars' author: Best to plan for 'every last drop'

Peter Annin is the author of "The Great Lakes Water Wars" and co-director of the Mary Griggs Burke Center for Freshwater Innovation at Northland College in Ashland, Wis.

CRAIN'S: Why does Chicago have such an advantage when it comes to Great Lakes water?

PETER ANNIN: Because of the 2008 Great Lakes Compact, all other Great Lakes states are restricted and cannot send water outside the watershed for diversions other than to a community that straddles the line. But Illinois has this Supreme Court case from 1967 that allows the state to send its water anywhere in the state that is practical.

Why does it matter?

Right now there are more than 100 collar communities in the Chicago metropolitan area that are operating on or have been given permission to tap into Lake Michigan water. Under the compact, the vast majority of them wouldn't even have the right to request that water, or if they did have the right, they would have to get the approval of all eight Great Lakes governors. Joliet wouldn't even be able

to request a Great Lakes water diversion under the compact. That's what drives people nuts in St. Paul and Lansing (Mich.) and Albany and even Ottawa.

In those places, they have to apply for a diversion under the compact?

And not only that, but once they divert the water, they have to build a pipeline to send it back. They have to return the water, which makes the diversion twice as expensive. Joliet can just divert the water and discharge it into the Mississippi River watershed, like Chicago does.

What's the impact on the Great Lakes?

The Chicago diversion, or the 2.1 billion gallons a day that goes to the Gulf of Mexico through urban Chicago today, lowered water levels on Lakes Michigan and



Huron by 2½ inches. That may not sound like much, but in 2013, just six short years ago, we broke the all-time-low water level. In low water periods, inches really, really matter.

That is why the Chicago diversion is what we don't want to have happen anymore in the Great Lakes region. Because if it were replicated a half a dozen times, then we wouldn't be talking about inches—we'd be talking about feet.

These lakes are very fragile, and we need to keep that in mind with all of our water-quantity and water-quality decisions. Yes, there's a lot of water in the Great Lakes Basin—6 quadrillion gallons is what I'm told. But only 1 percent of that water is renewed annually through rainfall, snowfall and groundwater recharge.

What's the status of the compact at this point?

I think the compact is holding up well. There are always going to be people who aren't happy with these compact decisions about diversions. But the point is that the process worked. They sent a signal that they're going to be tough.

If I'm in Iowa and my groundwater runs out, could I get Great Lakes water?

If you're in Iowa, you can't even request Great Lakes water. The best chance you've got is diverting from the Mississippi River.

Do you ever envision a national emergency where Congress or the Supreme Court would undo the compact?

There's always been this sort of dystopian fear that someday there could be a big, national water crisis that could prompt a run on the Great Lakes. I don't think that's going to happen. The Great Lakes Compact was lawyered to death, by dryland lawyers as well as wetland lawyers, international lawyers, etc. It is as strong a legal water fence as the Great Lakes region could have.

It'll be really interesting to see how much climate tolerance there is in other parts of the country going forward, and whether the Great Lakes region will see some kind of climate migration because of that.

What do you feel is the biggest threat to Great Lakes water at this point?

The two biggest issues are climate change and water infrastructure, then water quality.

What should Chicago be doing to prepare?

What is the strategy? How far is the state willing to go in selling water? Is Carbondale in the cards? Is Aurora in the cards? Where is that line? Once Chicago and the state of Illinois agree to sell water to Joliet, then that's less water that the collar communities have in the future. After the 2.1 billion gallons per day is tapped out, you have to go back to the Supreme Court to raise it.

I just think that it's an uncertain world and the more planning that can go into offsetting that uncertainty, the better off the Chicago metropolitan area and the state of Illinois will be.

I think as we leave the century of oil and enter the century of water, there's going to be increased pressure to squeeze efficiency out of every last drop, even in a water-rich region like the Great Lakes.

Read the full interview at ChicagoBusiness.com/waterQA

The Joyce Foundation invests in the future of the Great Lakes region by supporting policies that advance racial equity and economic mobility for the next generation.

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Collar counties exhausting aquifers

Joliet among more towns turning toward Lake Michigan

BY JAMES O'SHEA

Cities and towns across Chicago's collar counties face an increasingly urgent deadline to solve a problem that has been brewing for decades: They are running out of water.

The problem, according to the Illinois State Water Survey at the University of Illinois, is they are devouring water faster than it can be replenished from their main source: aquifers that store water underground and are used for everything from commercial development and recreation to bathing and drinking water.

The evolving water deficit carries ominous implications for economic growth and has spawned controversy in fast-growing communities such as Joliet, which is ground zero for the debate. By some expert projections, Joliet will run out of water within 10 years unless something is done.

Although the situation is not as dire in other communities, experts say about 20 percent of northeastern Illinois relies upon these aquifers, mainly in the outer-ring suburbs of Chicago in Kane, Kendall, Will and McHenry counties.

The shortage is driving many communities, including Joliet, to explore buying Lake Michigan water from suppliers like Chicago or Evanston. But that water isn't free, and the supply is not endless.

The risk of water shortages or dry wells is just as real in other collar-county communities—perhaps coming as soon as 2050 in McHenry County.

Overall, the communities that rely on aquifers are withdrawing about 98 million gallons of water a day from them. By all accounts, that is about double the sustainable rate.

Dan Hadley, a hydrogeologist at the Illinois State Water Survey in Champaign, cites state studies that suggest aquifer withdrawals in ar-

eas such as Will and Kendall counties must be reduced by at least 40 percent and even 50 percent over the longer term to ensure the region has adequate water supplies.

The situation could have been worse. In recent years, communities have dramatically improved conservation practices and plugged leaks in the system. Pollution controls have tightened, and rainfall collection has become more efficient. But that still hasn't offset the increased withdrawals.

"I think we're going to hit a wall, and it's not going to be pretty," says Moira Zellner, a research associate professor at the Institute for Environmental Science & Policy at the University of Illinois at Chicago. She says the region simply has to restrain economic growth if cit-

ies and towns want to maintain adequate water resources.

"The question is, how far are you willing to go to support that growth?" she says. "Are you willing to go all of the way to bucket showers?" (Zellner also heads the university's Urban Data Visualization Lab, which helped CityXones build an interactive map of Chicago-area drinking sources.)

To some observers, discussion of such limits might seem alarmist. The region, after all, borders the Great Lakes, one of the world's largest supplies of freshwater.

But experts at the Metropolitan Planning Council say Lake Michigan is not the panacea it might seem. Illinois' access to Lake Michigan water is restricted by a 1967 U.S. Supreme Court ruling that stems from Chicago's turn-of-the-century engineering feat that reversed the flow of the Chicago River to ease the city's water-supply and pollution problems.

The ruling limits Illinois to 2.1 billion gallons of water a day from Lake Michigan, which currently serves 6.6 million people in the state. Illinois currently uses 76 percent of its allocation, but that usage

doesn't include many cities and towns like Joliet.

Instead those communities rely on shallow aquifers, which are up to 500 feet underground, and deep aquifers even farther down. The deep aquifers supply most of the water to communities not served by Lake Michigan.

Adding to the gravity of the situation is the aging of water treatment plants built to collect, treat and provide drinking water to homes and businesses. In many cases, the infrastructure is 50 to 100 years old.

"It is not hyperbole to say that if we fail to act, we face catastrophes such as water main breaks, collapsing infrastructure and drinking water contamination," a Metropolitan Planning Council study says. "If we don't act, the question isn't whether disaster will strike, but when."

Water problems affect a wide swath of communities, but Joliet, the third-largest city in the state, typifies the challenges. Because of its geological profile, past water usage, bureaucratic indecision and location in one of the faster-growing counties in the state, Joliet's problem is simply more urgent.

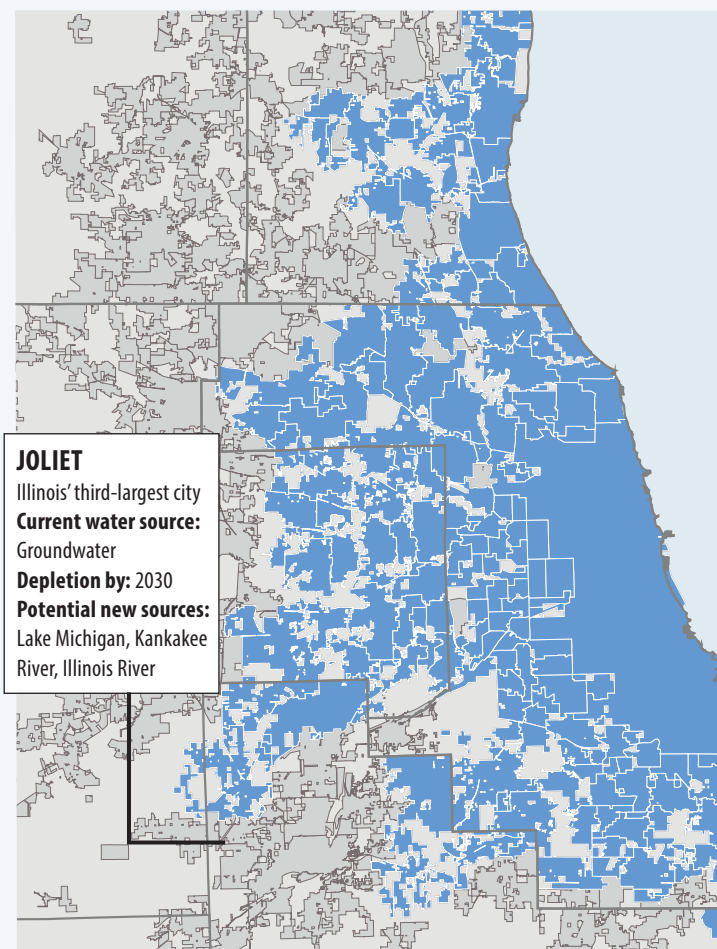
The city is scrambling to identify an alternative water source by the end of the year. Joliet officials could then start the lengthy process of infrastructure changes and improvements needed to beef up the city's water resources and deal with the increasing problem of radon pollution.

"As far back as 40 years, Joliet has been talking about an alternative water supply," says John Hertko, who sits on the city's eight-member Environmental & Refuse Commission. "The can has been kicked down the road. In 1989, they had the money to (supplement the aquifer); they didn't do it. In 2000 and 2003, they had the money and didn't do it. But now with climate change, the environmental circumstances have changed."

Hertko credits the current may-

WHO DRINKS FROM WHERE?

The number of Chicago-area communities drinking water from Lake Michigan (in blue) has grown dramatically, while others depend on groundwater. To explore your town's source, go to this CityXones interactive map online at ChicagoBusiness.com/watersource.



Note: Includes towns that use Lake Michigan water and some other water source; data is from 2012. Source: University of Illinois.

or, Bob O'Dekirk, and City Council for spearheading the search for new water sources. But the search has set off sparks as water-rich communities compete with each other to win Joliet's business.

After considering alternatives for several months, Joliet is now looking at securing water from either Lake Michigan, the Kankakee River or, to a lesser extent, the Illinois River, commission member Wayne Horne says.

Both Hertko and Horne say they

see Lake Michigan as the only real alternative. The question is, should Joliet buy the water from Chicago, buy it from another party, or try to build a pipeline to Lake Michigan itself? The latter would require approval from the Illinois Department of Natural Resources, which regulates access to lake water.

"No matter what we do, it is going to be costly because we are going to have to bring a pipe from somewhere," Horne says.



Storms, flooding hit poorest communities hardest

More severe weather will overwhelm sewers designed long ago

BY BRETT CHASE

A midwinter downpour flooded south suburban Ford Heights so badly in early 2018 that it shut down an elementary school in town. A family was rescued from their home by a rowboat. And a resident near Deer Creek says he caught fish off his front porch.

"Once that creek overflows, it's over," says Ricardo Bradford, who fished from his rental property. "There's nothing you can do."

Like many towns in Cook County's south suburbs, Ford Heights has had to absorb an inordinate amount of flooding that has hit the Chicago area in recent years. Many of the south suburbs sit in a low-lying section of northeastern Illinois, but they also lack the infrastructure needed to contain often-teeming waterways that crisscross the region.

And the situation will get worse with climate change. Weather forecast models predict harder and more frequent downpours, which inevitably will further overwhelm stormwater systems designed long ago, before laws were passed to prevent development that exacerbates flooding.

The concerns aren't limited to the south suburbs—they affect towns throughout Cook County, including Chicago, where officials say the Deep Tunnel project won't fully prevent flooding.

But one constant is that those areas most affected are those with the fewest resources—often the poorest neighborhoods and communities of color.

In Chicago, 87 percent of flood damage insurance claims between 2007 and 2016 were paid in minority communities, according to an analysis by the Chicago-based Center for Neighborhood Technology.

It's also in towns such as Ford Heights, where nearly half the households fall below the federal poverty line and more than 90 percent of residents are black.

"With all the other needs these communities are grappling with, if you're already struggling to make ends meet and dealing with flooding, too, it can really compound problems for low-income and people of color," says Kate Evasic, a senior planner at the Chicago Metropolitan Agency for Planning.

A first-of-its-kind flooding vulnerability map CMAP produced, as part of its regional outlook for



Ford Heights resident Ricardo Bradford.



A car owner waits out a 2014 flood in Burbank.

the year 2050, shows the most vulnerable areas in Cook County are in the southern stretches of Chicago and in the south suburbs. The map aims to show areas that should be prioritized for help from federal, state and local governments, Evasic says.

"There is a real need to maintain and upgrade infrastructure to take into account all the development that's taken place," she says. "You're building capacity not just for the storms today but the storms ahead."

Southern Cook already is feeling the impact of heavier storms.

In Park Forest, weather station readings show the number of heavy precipitation days—when rainfall exceeds half an inch—increased by an alarming 1.15 days each decade between 1953 and 2018, according to an analysis for the BGA by Illinois State Climatologist Trent Ford.

"Such a trend in heavy precipitation days makes it more likely to have more frequent, impactful heavy precipitation, which can result in dangerous flash flooding in developed areas," Ford says.

Among the hardest hit are communities such as Dolton, Riverdale and Robbins, towns close to the Calumet River and its tributaries with stormwater systems that can't handle the rapid bursts of heavy rainfall and that lack the planning resources to re-engineer their communities.

Planners say some low-lying areas will always flood, and ultimately full-scale redesigns of en-

challenge, and any significant advancements will have to be prioritized—not easy in communities that are struggling.

Take Robbins. Village officials hope a \$12 million project led by the Metropolitan Water Reclamation District will help reduce some of the flooding caused by a nearby creek.

But the town of about 5,400 residents is hoping to also secure government funding to redevelop an area devastated by years of flooding around the town's Metra station. That's a project CMAP and the Regional Transportation Authority are studying, but it remains to be seen whether it will ever be started.

"There's always been some seasonal flooding, but it has gotten a lot worse over time," says Robbins' village planner, Maggie Catania. "It wiped out an entire part of the community."

COST OF SOLUTIONS UNFATHOMABLE

More than 100 Cook County communities are in various stages of flood planning, an MWRD official says. But the price tag to completely fix flooding in all of Cook County is almost unfathomable. Richard Fisher, principal civil engineer at MWRD, estimates the cost at around \$70 billion, billions more than this year's entire state budget.

MWRD only got authority from the Illinois Legislature in 2014 to work with communities to devise, finance and implement comprehensive flood plans. Before that, the villages and towns—many cash-strapped—"were pretty much all on their own," Fisher says.

While engineers look for fixes by raising embankments or widening part of a creek's flow along waterways, some communities also add green infrastructure to absorb and drain floodwater. Midlothian is getting both, but only after persistent pushing by residents for government help.

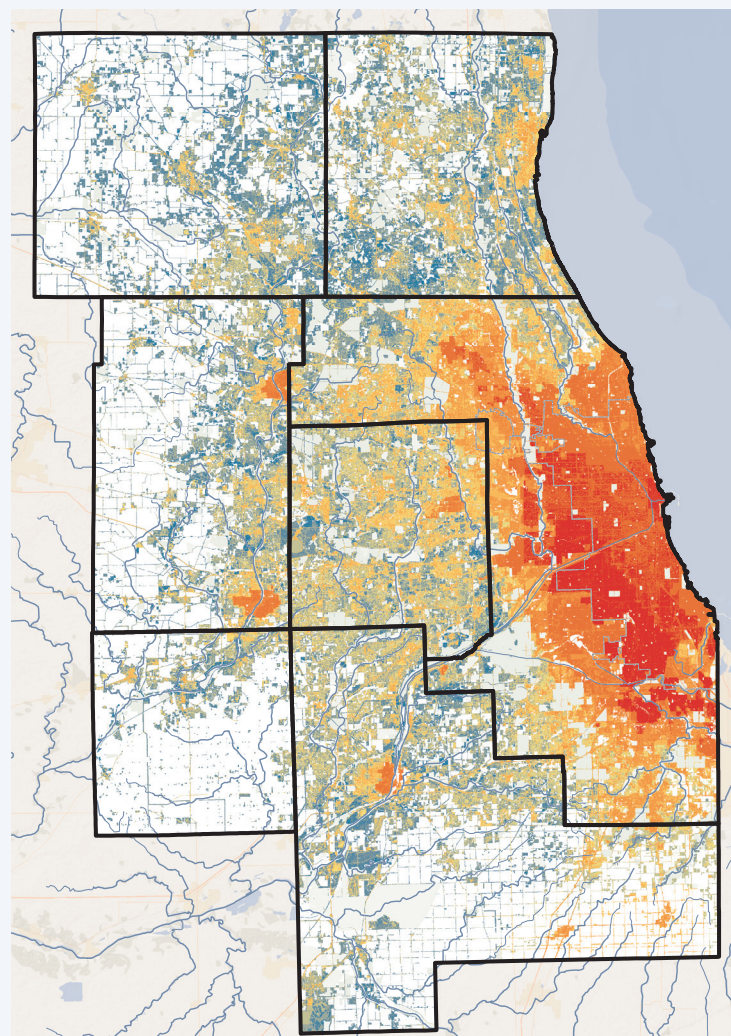
Midlothian is a village inundated for years every time a nearby creek overflows.

Eventually, state Rep. Will Davis set up a meeting to address dozens of government agencies at once.

MOST VULNERABLE TO FLOODING

Exposure to flooding is often greater in communities already facing a lack of resources and other challenges, such as inadequate sewer systems. This map by the Chicago Metropolitan Agency for Planning shows the city's southern neighborhoods and suburbs have the highest flooding susceptibility. CMAP used several factors to determine a community's risk, including combined sewer capacity, topography and elevation.

1 (low) 2 3 4 5 6 7 8 9 10 (high)



Ultimately full-scale redesigns of entire portions of cities will likely be necessary.

tire portions of cities will likely be necessary. In other areas, green infrastructure—including retention ponds, gardens, drainage and other fixes—may help stem the tide.

"We're trying to make our communities sponges," Evasic says.

But financing the work is a

The need to include so many official bodies—all with a stake in flooding—illustrates another complexity standing in the way.

"I was amazed that so little rain could turn these backyards into lakes," Davis says. "I was also amazed nobody was doing anything

about it. Nobody was listening."

MWRD is working on a \$7.6 million flood mitigation project to help Midlothian. But an early step the village took was to introduce more green space, permeable surfaces and other ways to absorb and divert water.

FORUM IDEAS

► BREAKING OUR COMPLACENCY

Needed: More vision and a sense of urgency

Chicago is rich in water—that's no secret. Lake Michigan is one of the world's largest sources of freshwater. Yet our water problems abound: flooding, lead pipes and excessively expensive water bills. They're the new normal. Solutions seem slow to come and far away.

Abundance breeds complacency. The vastness of Lake Michigan not only encourages lazy days spent on the beach, but also numbs us to the urgency at hand.

Complacency is ingrained in the bones of our infrastructure, governance and decisions. Peers like Milwaukee and Toronto consume their lake water, clean it, return it and then do it again. Innovative water management is imperative. Stewardship is an existential necessity. Meanwhile, since we reversed our river, we've sent our

effluent and most of our urgency downstream.

Places like Las Vegas and Phoenix don't have much water at all, and have implemented elaborate conservation programs to survive and thrive. We lack the same conservation imperative—it's not unusual for Chicago-area communities to lose track of 20, 30 and even 50 percent of water due to leaky pipes. It just drips away.

It would be one thing if the only consequences of our complacency were wastefulness, a missed opportunity for leadership in the climate change era, or a failure to fully seize on the promise our water holds for economic growth.

But urgency calls throughout the Chicago area. Our water complacency is putting kids at risk from lead exposure in hundreds of thousands of homes. Chronic flooding is draining wealth from



Josh Ellis is vice president of the Metropolitan Planning Council.



STEPHEN J. SERIO

our most vulnerable communities. Escalating water rates are exacerbating the forces of inequity since they're often set without any real consideration for ability to pay.

A big lake won't solve those problems. Investment and equitable policies will, but they must be informed by values above and beyond stewardship and conservation—and we'll also need a plan.

Step one is developing a vision for Chicago's water future, but that needs to be reinforced by a new charge and mission for the city's

Department of Water Management, one that goes well beyond selling as much water as possible.

Yet planning for water in isolation would be shortsighted. A new vision for Chicago's water future must be integrated into a citywide comprehensive plan, policies and projects across departments, budgeting, staffing, policy reform and our economic development strategy.

This new vision must also inform partnerships within our local river systems, suburban water relationships and the Great Lakes region.

Integrating water decisions into all aspects of governance is fairly normal in places where urgency compels action, where necessity demands invention. It hasn't been our normal since we reversed the river more than a century ago, and since then the lake has dulled our senses.

But imperative has come for Chicago again. City Hall is rightly acting on the urgency of citywide equity, health and well-being; it's past time those values informed our water resources management as well.

► IN THE NEIGHBORHOODS

Lead, high water rates are twin crises for families

Access to clean, affordable water is essential for life—and a human right. Despite this, thousands of households across Chicago face the twin crises of unaffordability and brain-damaging lead when it comes to their drinking water.

Chicago required that buildings use lead service lines until 1986. Since then, city actions via the water main replacement program and recently halted water meter installation program have been shown to increase risks from lead in water for some households. At the same time, Chicago's water and sewer bills have tripled in the last decade.

For youth in Little Village, Pilsen, the Southeast Side and countless other majority black and Latinx neighborhoods, risks associated with lead in drinking water are just the beginning. Children also face lifetime consequences of a toxic cocktail of lead in paint of older housing stock, lead in soil of front

yards and parks from industrial pollution, and lead in the air from industrial emissions.

While the city says that Chicago's water consistently meets or exceeds all standards set by the U.S. EPA, Illinois EPA and drinking water industry, the problem comes from the service lines around homes.

Hit hardest by these risks, Chicago's low-income communities of color are the least able to shoulder the resulting financial and public health burdens. In Little Village, 93 percent of residences were built before 1970, and over 64 percent of households are renter-occupied.

Parents note the shame of struggling to afford filters and providing water for their kids that they cannot guarantee is lead-free. For those whose children have attended any of the schools or child care facilities where testing found lead in drinking water—a practice now required by state law—the distress is most acute.



Juliana Pino is policy director at the Little Village Environmental Justice Organization.



GETTY IMAGES

Families have also told of landlords who have little incentive to fund out-of-pocket lead service line replacement due to high permitting and labor costs of these projects on a building-by-building basis.

Knowing their water may contain lead only compounds the blow of increasingly expensive drinking water. When low-income tenants or their landlords fall behind on payments and have their water shut off, they tell of extreme burdens of lacking water for basic functions.

When driven to reconnect their water out of desperation, violating Department of Water Management protocols, residents are made to pay a \$500 fine with each incident, with no access to payment plans unless they can pay 50 percent of what they owe upfront.

An in-depth investigation by WBEZ and American Public Media revealed that this pattern is widespread across Chicago as illegal reconnections outpace legal ones. There were 150,000 shut-off notices issued and \$7 million in fees and

finest collected in the last decade, over \$2 million of which came from the city's 10 poorest ZIP codes.

Environmental justice requires bold work by the city and state to accept the consequences of harm to the public's health and economic well-being as a result of their own laws and policies, and to work in collaboration with communities to change the status quo.

To respond to our water crises, Chicago must continue Mayor Lori Lightfoot's moratorium on water shut-offs. The city must reform and lower billing and fine structures so that access to life-giving water does not transform into destructive debt for low-income families here and in the nearby suburbs.

Illinois and Chicago need to lead the charge for statewide requirements that all water utilities plan for filter distribution and taking all lead out of our water systems, starting with communities facing the most cumulative risks. Illinois and Chicago must also spearhead creation of water assistance programs to support the households struggling most with their bills.

There is too much at stake to wait.

FROM THE SOUTHWEST

Lakes' real threats are close to home

A few years ago, a Michigan billboard—reading “Back off suckers: Water diversion . . . the last straw”—showed caricatures of Southwestern states with giant straws going into the Great Lakes.

Is this the Midwest's future? Whenever I come to the Midwest for a talk, I usually display a slide of the billboard and then scold the audience: It's preposterous to think that we in the Southwest want to divert all the water in the Great Lakes. We'd settle for just one of the smaller ones.

Some audiences laugh; others don't.

To be sure, dreamers occasionally propose to slake the West's thirst by towing an iceberg from Alaska, diverting a river in British Columbia or even putting a straw into the Great Lakes. These fanciful schemes fail to consider how complicated and expensive it would be to permit, build and operate such interstate or international water transfers.

Space does not permit me to elaborate on all the obstacles facing the transfer of Great Lakes water, but let me mention one: the Rocky Mountains.

Plus, the economics don't pencil out. Rather than plundering some other area's supply, the West can satisfy new demands for water by conserving and reusing the water it already has, building desalination plants, pricing water appropriately and using market forces to reallocate water from low- to high-value uses.

The real threat faced by Great Lakes states is a regional one.

The 2008 Great Lakes-St. Lawrence River Basin Water Resources Compact prohibits most diversions out of the basin. But recent controversies, including Nestle's bottled water operation in Michigan and a Foxconn proposal in Wisconsin to divert 7 million gallons a day from Lake Michigan to manufacture LCD

screens, demonstrate that the compact does not provide iron-clad protection for the basin.

Another local, and more pernicious, threat comes from groundwater pumping.

In the face of recent droughts, farmers across the Midwest have drilled thousands of high-capacity wells. Since the 2012 drought, Illinois farmers have installed almost 1,000 center-pivot systems. Agricultural irrigation in Illinois uses about the same amount of water as 2 million people. It's a new kind of use in the Midwest, where farmers traditionally dryland farmed.

Water law in Illinois, as in most Midwestern states, governs groundwater with the reasonable use doctrine, an oxymoron because it allows use of an unlimited quantity of groundwater for virtually any purpose.

Think of groundwater as a giant milkshake glass, and think of a well as a straw in the glass. Illinois allows an unlimited number of straws in the glass, which is utterly unsustainable. An Illinois law was supposed to require well owners to report their pumping by 2015. As of this month, no one knows how many wells there are or how much water they pump.

Despite its abundant water resources, the Midwest faces serious problems. The crisis in Flint, Mich., exposed how communities have failed to fund maintenance and modernization of their water and wastewater systems.

Municipal water providers understand the problems, but they find it hard to generate political support for spending millions or billions of dollars on water infrastructure.

Alas, most of us take water for granted. When we wake up in the morning and turn on the tap, out comes as much fresh water as we want, for less than we pay for cellphone service or cable television.



Robert Glennon is a regents professor at the University of Arizona College of Law and author of “Unquenchable: America's Water Crisis and What to Do About It.”



The Space to Grow program made 20 schoolyards more permeable to prevent runoff.

ABSORBING STORMWATER

For flood control, we need green fixes, not just gray

The Metropolitan Water Reclamation District of Greater Chicago is home to many notable engineering achievements over the last 130 years.

We reversed the flow of the Chicago River to protect Lake Michigan, introduced local wastewater treatment, developed resource recovery strategies and instituted many water quality enhancements to improve our quality of life and the water resources upon which we rely.

Another of those achievements is hundreds of feet below the surface, mined into limestone and working to protect our communities from flooding and our waterways from pollution. The Tunnel & Reservoir Plan (TARP), which includes the “Deep Tunnel,” is one of the nation's largest public works projects, emulated around the world for its ability to store stormwater and wastewater that formerly flowed into our waterways.

To stand over a titanic reservoir as it fills with billions of gallons of water is impressive, but as effective as the system is in safeguarding our

water and shielding us from storms, it's still not enough.

Changing weather patterns require that we devise long-term solutions that meet this wave of new water. We own and operate

34 stormwater detention reservoirs and three combined sewer reservoirs, two of which are considered the world's largest of their kind. And as we complete the final piece of TARP, we realize we cannot continue drilling massive holes.

Green infrastructure captures water and allows it to infiltrate into the ground before it enters traditional conveyance systems, mimicking the natural water cycle. These projects decrease flows to combined and separate sewer systems,

protecting water quality in our waterways. Together with our local partners, we have completed nearly 20 green infrastructure projects designed to store more than 7 million gallons per rain event.

We are also working toward the completion this year of our 20th permeable schoolyard through our Space to Grow program. The partnership formed between the

MWRD, Chicago Public Schools, the Chicago Department of Water Management, Openlands and Healthy Schools Campaign has resulted in more than 3 million gallons of stormwater retention per rain event.

Space to Grow transforms the schoolyards into vibrant and functional community spaces, while addressing neighborhood flooding. The schoolyards absorb more water, reduce the load on the combined sewer system and educate students and neighbors about green infrastructure techniques and purpose.

Last May we experienced record rainfall, totals that eclipsed the record set only the previous May. Today we educate our communities on water conservation—especially during storms, to reduce the amount of water taxing our systems—and ways in which homeowners can help manage stormwater. We are also committed to a variety of stormwater management projects across Cook County. Many occur on grand scales, like reservoirs, levees and stream improvements. Yet many smaller local projects, like permeable parking lots, green alleys, rain gardens, tree canopies and rain barrel installations, can help combat these intense storms.

Each inch of rain counts, and sustainable initiatives will be paramount in managing our water.



Kari K. Steele is president of the board of commissioners of the Metropolitan Water Reclamation District of Greater Chicago.

IDEAS FOR BETTER MANAGING THE CHICAGO AREA'S WATER

LEAD

Mayor Lori Lightfoot's transition team recommended replacing old lead service lines, and a consultant is studying the issue.

PRICES

Adopt progressive water rates to make them more affordable for the poor.

STRATEGY

Develop a more comprehensive plan for all water management, and more coordination between agencies.

LEAKS

The city is currently spending almost \$4 billion to replace water and sewer mains as part of a 10-year capital program.

SUPPLY

Promote conservation to further reduce consumption and a long-term plan for selling Lake Michigan water beyond the city.

GROUNDWATER

Set limits on development and water withdrawals to slow rapid depletion of aquifers in collar counties.

FLOODING

Implement more green solutions, like making schoolyards more permeable, regional planning and infrastructure improvements.

ASIAN CARP

A new barrier system is proposed for Brandon Road Lock & Dam near Joliet, but needed approvals are taking time.

BUSINESS

Promote the area's resources as a “blue economy” lure for companies and jobs, and further innovation.

CLIMATE

Lightfoot's transition team recommended studying future risks and designing infrastructure improvements.

FORUM IDEAS

► INNOVATION AND EQUITY

Get the basics right in assuring water access

Chicago has invested billions of dollars to protect Lake Michigan. Yet we continue to struggle with the most basic of functions: providing equal access to safe water for all residents.

Despite living next to one of the world's largest sources of fresh surface water, a lack of access to safe drinking water is a daily reality for too many Chicagoans.

Though water from our lake is clean, Chicago has more lead water pipes than any other city in the country. Until recently, the city downplayed the risks those pipes pose to people, particularly children. We just haven't kept up with innovations that are enabling other cash-strapped cities to upgrade pipes.

Philadelphia developed a Tiered Assistance Program that allows qualifying households to pay a



Elizabeth Cisar is a senior program officer at the Joyce Foundation.



Joel Brammeier is president and CEO of the Alliance for the Great Lakes.

low, fixed monthly cost based on their income. Buffalo, N.Y., created programs for replacing lead pipes affordably with advice from the Center for Neighborhood Technology, a Chicago nonprofit. Similar efforts here would help restore the trust of Chicago families in what is

coming out of their taps.

Rising costs also endanger access to safe drinking water. Water rates in Chicago nearly tripled between 2007 and 2018, in part because the city added a tax to water bills to help cover pension shortfalls. More than 150,000 people have received water shut-off notices in the last decade.

Mayor Lori Lightfoot's moratorium on shut-offs was an important step in ensuring that low-income families have access to safe drinking water. The city should make that moratorium permanent and look at the rate structures Philadelphia and other cities are using to ensure adequate revenue while protecting families.

As climate change wreaks havoc on water supplies around the world, we have to put water at the center of our way of life here at

home. To create a thriving future, Chicago must govern and invest in our waterways like every drop of water is connected.

Providing safe, clean and affordable drinking water is one aspect of responsible stewardship of our water. Another is stopping flooding.

In some places climate change means drought. In Chicago, it means increasingly extreme rains overwhelm drains and waterways and foul our homes, businesses and streets. And floodwater is not clean water. Chicago's South-east Side has more contaminated "brownfields" than any other part of the city. It's bad to have sewer water back up in your basement. It's worse if that floodwater carries with it potentially toxic debris running off contaminated land. To address this issue, Chicago and the Metropolitan Water Reclamation

District need to partner more.

Just as Chicago has lost a step on drinking water and flooding, our management of precious waterfront land hasn't kept pace with the needs of residents. On that front, the city's Industrial Corridor Modernization initiative is a critical opportunity for community members to lead the effort to create healthy waterways that offer safe and enjoyable access for all.

Equitable water access for all—that should be our guiding principle as we work to create a future in which this irreplaceable resource drives growth and draws people to build lives, neighborhoods and businesses that connect with healthy water every day.

The Joyce Foundation is a sponsor of Crain's Forum.

FORUM WATER

Chicago sees water as future business lure

But city yet to capitalize on 'blue economy' amid conservation, other assets

BY STEVEN R. STRAHLER

A California drought and talk of water becoming more valuable than oil or gold mobilized Chicago officials several years ago to explore recruiting companies in water-stressed areas to the shores of Lake Michigan.

As the impacts of climate change become more visible, the impulse was understandable. Chicago is well-positioned to capitalize on its access to the Great Lakes—a fifth of the planet's freshwater—and the technology base growing up around it.

Many believe water will shape Chicago's economic future like little else, with the water industry becoming digitized much like telecom and other industries.

Yet no major ribbon-cuttings have ensued. While other Great Lakes cities have promoted their "blue economy" for years, Chicago hasn't felt an urgency to sell its liquid assets as aggressively, and a trend toward conservation may have blunted the prospects, at least for now.

"Frankly, I think we're in the very early innings or even the pre-game warmups," says Steven Kloos, a venture capitalist and chairman of Current, a joint venture that promotes water innovation.

Some are concerned that Chicago hasn't moved as quickly as Milwaukee and other cities.

Chicago's relative economic diversity—being "a global city for a long time"—has stunted its water push, says John Austin, director of the Michigan Economic Center in Ann Arbor and a fellow at the Chicago Council on Global Affairs.

He contends, "Chicago has not organized around that purposely as a strategy. It hasn't said, 'We're going to be a leader in water technology.' Nor is Chicago the world's R&D center for water. The universities haven't been out in front on that."

Regionally, one goal of the 2008 Great Lakes Compact, among eight states and two Canadian provinces, was to severely restrict the extraction of water from the area and instead lure thirsty businesses and jobs here. While controversial, Wisconsin's deal to land Foxconn, a huge Taiwanese electronics company, was held up as an example, though its outcome is now uncertain.

Others say the region needs better strategic planning for the possibility that more people and businesses will move here if other areas of the country dry out as the climate shifts.

World Business Chicago, the city's job recruitment arm and a partner in Current, estimated in 2016 that water-intensive industries here, including energy production, already account for more than \$100 billion in annual output.

Chicago and other lakeside municipalities extract hundreds of mil-



Many believe water will shape Chicago's economic future like little else.

lions of gallons of water from the lake each day. Companies sometimes treat it themselves before using—and reusing—it.

Companies' awareness of water issues has increased, leading to more innovative methods of using and conserving it.

For example, Naperville's Nalco Water this month showed off a process that cuts water consumption by 20 percent in the production of colloidal silica for LED lights and other uses.

With predictive analytics, artificial intelligence and other methods, industry could usher in an era of "fit for purpose" water, purified at different levels for different uses. An example: Breweries, including Chicago's Lagunitas, use drinkable water to wash insides of bottles, reuse it to wash their outsides and use it again to mop the floors.

Another innovation could involve Chicago's abundant production

of wastewater, according to Seth Darling, chief of Argonne National Laboratory's Center for Advanced Materials for Energy-Water Systems. A pilot project is removing phosphorus from wastewater for resale.

"I don't think there is currently any consensus (research and development) center for water in the United States today, but I believe this region is poised to assume that position," he says. "This is, literally, an untapped resource."

Michigan's Austin predicts the "real money" will be in shifting companies toward net zero water consumption, just as they're doing with net zero energy buildings.

While other cities moved earlier to promote their water, their experience corroborates that the Great Lakes have not been as strong a lure as hoped.

A decade ago, public and private leaders in Milwaukee established a Water Council, showcasing the city's

200-some water-based firms. But water itself "is not an asset I would describe as a differentiator" in corporate recruiting, says Jim Paetsch, a vice president at Milwaukee 7, an economic development agency.

Cleveland, too, tried to draw companies to its water assets. But among 50 contacted some five years ago, none has taken the bait, says Bryan Stubbs, president of the Cleveland Water Alliance.

The potential for Chicago's water has its enthusiasts, such as water company investor and California transplant Michael Reardon, who says Chicago could become "the Silicon Valley of water. There's a lot of energy and innovation, but it still takes leadership to connect the dots."

What's hindered that dot-connecting, says former Current Executive Director Steve Frenkel, is water's long perception as a nearly free commodity and a fragmented industry.

"Unlike the power industry, the U.S. water sector has historically lacked the markets, pricing, policy incentives and mandates that can accelerate innovation," he says.

Current isn't an incubator or accelerator like Chicago's 1871 high-tech hub, but an "innovation partner" connecting clients to problem solvers, Frenkel says.

Argonne's Darling says conservation can prolong a reckoning on business's need for more water, but only for a while.

While water isn't a corporate magnet for Chicago today, Darling says, "over time, not just for Chicago but for the Great Lakes region, that will be a huge draw."