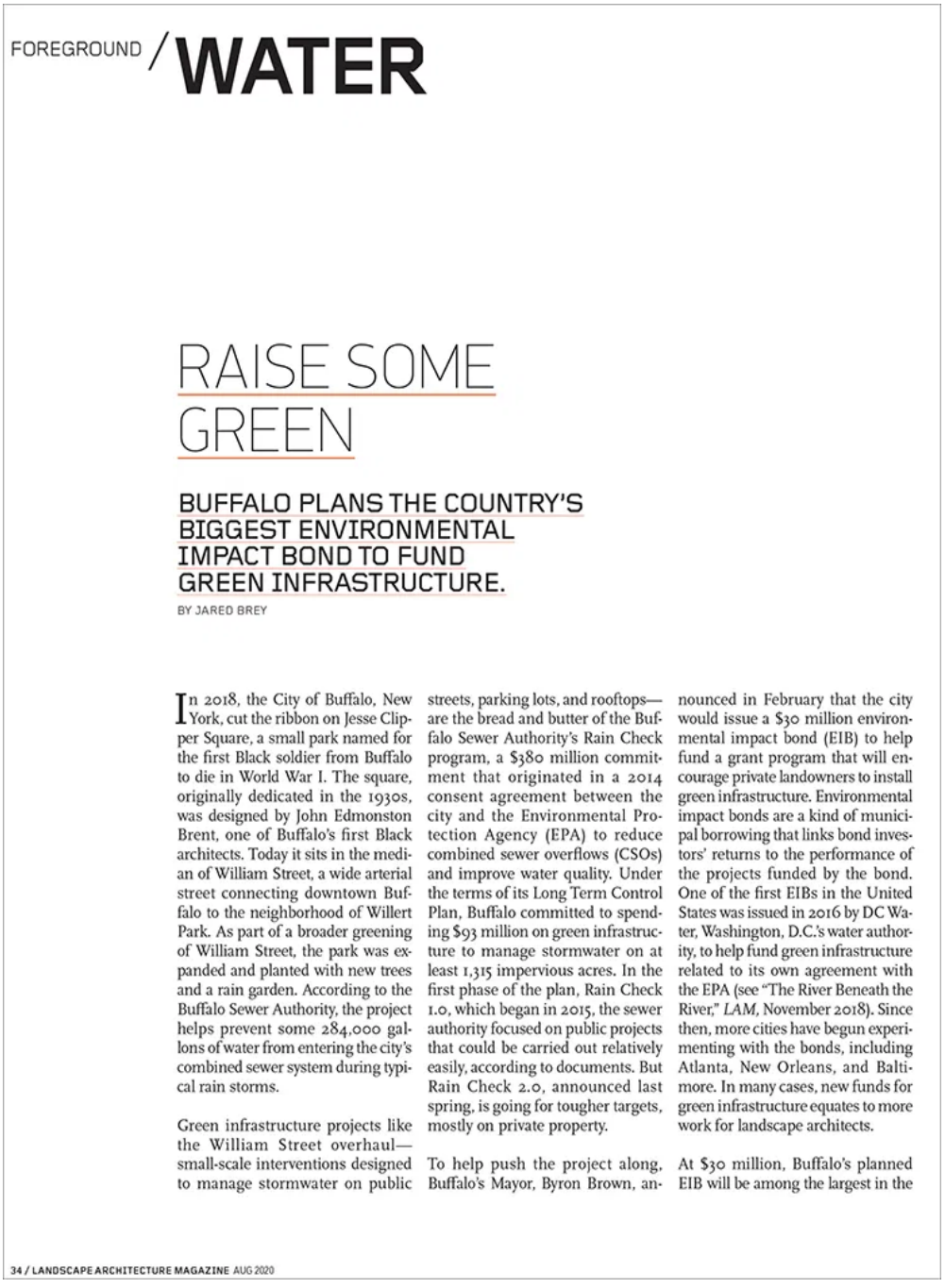
RAISE SOME GREEN

BY JARED BREY



FOREGROUND / WATER

RAISE SOME GREEN

BUFFALO PLANS THE COUNTRY'S BIGGEST ENVIRONMENTAL IMPACT BOND TO FUND GREEN INFRASTRUCTURE.

BY JARED BREY

In 2018, the City of Buffalo, New York, cut the ribbon on Jesse Clipper Square, a small park named for the first Black soldier from Buffalo to die in World War I. The square, originally dedicated in the 1930s, was designed by John Edmonston Brent, one of Buffalo's first Black architects. Today it sits in the median of William Street, a wide arterial street connecting downtown Buffalo to the neighborhood of Willert Park. As part of a broader greening of William Street, the park was expanded and planted with new trees and a rain garden. According to the Buffalo Sewer Authority, the project helps prevent some 284,000 gallons of water from entering the city's combined sewer system during typical rain storms.

Green infrastructure projects like the William Street overhaul—small-scale interventions designed to manage stormwater on public streets, parking lots, and rooftops—are the bread and butter of the Buffalo Sewer Authority's Rain Check program, a $380 million commitment that originated in a 2014 consent agreement between the city and the Environmental Protection Agency (EPA) to reduce combined sewer overflows (CSOs) and improve water quality. Under the terms of its Long Term Control Plan, Buffalo committed to spending $93 million on green infrastructure to manage stormwater on at least 1,315 impervious acres. In the first phase of the plan, Rain Check 1.0, which began in 2015, the sewer authority focused on public projects that could be carried out relatively easily, according to documents. But Rain Check 2.0, announced last spring, is going for tougher targets, mostly on private property.

To help push the project along, Buffalo's Mayor, Byron Brown, announced in February that the city would issue a $30 million environmental impact bond (EIB) to help fund a grant program that will encourage private landowners to install green infrastructure. Environmental impact bonds are a kind of municipal borrowing that links bond investors' returns to the performance of the projects funded by the bond. One of the first EIBs in the United States was issued in 2016 by DC Water, Washington, D.C.'s water authority, to help fund green infrastructure related to its own agreement with the EPA (see "The River Beneath the River," *LAM*, November 2018). Since then, more cities have begun experimenting with the bonds, including Atlanta, New Orleans, and Baltimore. In many cases, new funds for green infrastructure equates to more work for landscape architects.

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Buffalo plans the country's biggest environmental impact bond to fund green infrastructure.

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In 2018, the City of Buffalo, New York, cut the ribbon on Jesse Clipper Square, a small park named for the first Black soldier from Buffalo to die in World War I. The square, originally dedicated in the 1930s, was designed by John Edmonston Brent, one of Buffalo's first Black architects. Today it sits in the median of William Street, a wide arterial street connecting downtown Buffalo to the neighborhood of Willert Park. As part of a broader greening of William Street, the park was expanded and planted with new trees and a rain garden. According to the Buffalo Sewer Authority, the project helps prevent some 284,000 gallons of water from entering the city's combined sewer system during typical rain storms.

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At $30 million, Buffalo's planned EIB will be among the largest in the country, according to the sewer authority. The proceeds will help fund projects in six "priority combined sewer overflow basins" that are the target of the Rain Check 2.0 program. The sewer authority identified those areas based on stormwater management needs, but also a range of equity goals related to workforce development, contracting and procurement, neighborhood revitalization, and public engagement, says Oluwole McFoy, the CEO and general manager of the Buffalo Sewer Authority.

"It's not enough for us to just have green infrastructure placed in there," McFoy says. "We don't want to be here when our long-term control plan is due up on March 18 of 2034, looking back and saying, 'We spent all this money, but we haven't transformed our community.'"

Buffalo's EIB originated in a "Green Stormwater Infrastructure Challenge" issued by the P3GreatLakes Initiative, a consortium of environmental and financial consultants focused on water infrastructure in the Great Lakes region. Environmental impact bonds like Buffalo's often cost more up front than typical municipal bond offers, and cities pay bond investors back at a slightly higher interest rate. But the bonds are structured to share the risk of the project between the investors and the city. Before EIBs are sold, cities identify certain performance metrics, such as the number of acres of impervious surface to be managed by green infrastructure or the volume of stormwater to be captured. If those targets are met, cities pay investors back at an agreed-upon rate. If the projects underperform, investors pay a penalty back to the city. If they exceed expectations, cities pay a bonus to the investors. But in any event, the process is designed to provide benefits to the city—either in the form of lower interest for subpar projects, or long-term cost savings from high-performing ones.

In Buffalo's case, the sewer authority says performance will be measured by the overall number of impervious acres managed by green stormwater infrastructure—a section of parking lot that drains to a rain garden, say, rather than directly into a sewer. The sewer authority is taking a risk on an incentive program that requires participation by private property owners to succeed. By funding the

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program with EIBs, it will share that risk with investors. But a successful incentive program would equate to more stormwater managed on private property and lower maintenance costs for the Buffalo Sewer Authority.

"It puts performance at the center of the whole transaction, in the financing and the construction and the operations," says David Rankin, the executive director of the Great Lakes Protection Fund, which supports the P3GreatLakes Initiative and helped early on with Buffalo's bond.

Traditionally, Rankin says, cities would get money to build sewage treatment plants or other infrastructure and cross their fingers that they worked.

"There was a real sense of, if we build these things, that's what we're supposed to do, right?" Rankin says. "And it's like, no. What you're supposed to do is clean the water to a spec or restore the stream to a spec, and if you can get incentives set up so that people get paid for hitting the spec, that's going to drive a lot of efficiency all the way through the process."

Atlanta issued a $14 million EIB at the beginning of 2019 to fund six green infrastructure projects in the Proctor Creek watershed. As part of the bond, says Amanda Hallauer, an environmental planner in the City of Atlanta's Department of Watershed Management, the city and bond investors agreed on a volume of stormwater to be captured in all the projects. An independent evaluator will test how well they worked after construction is complete to determine the repayment amount. The structure of the bond helps alleviate some of the risk of trying new infrastructure practices, Hallauer says, and if the projects overperform, there's an environmental upside that equates to cost savings, which will offset the bonus paid to investors.

The Atlanta projects will be installed in communities that have suffered from disinvestment as well as environmental challenges such as stream degradation. In addition to stormwater capture, the city has also committed to creating green infrastructure jobs for local residents.

"Delivering these projects will be a success anyway, because they're going to have value whether or not they have that many more gallons [captured]," Hallauer says. "You're taking something that has a little risk and hoping that if you're successful, there will be more opportunity in the future for more funding and things like that."

The Chesapeake Bay Foundation is also helping structure EIBs for green stormwater projects in Baltimore and Hampton, Virginia. The Mississippi River Cities and Towns Initiative recently awarded funds to New Orleans and Memphis to explore EIBs as well. The Environmental Defense Fund cowrote a report in 2018 endorsing the use of EIBs for marsh restoration on the Louisiana coast.

Paula Conolly, the director of the Green Infrastructure Leadership Exchange, a "peer learning network" of cities, counties, and utilities across the United States, says she was initially an EIB skeptic, because it seemed simply like a more costly way for cities to fund infrastructure projects. But as cities have begun to experiment with the bonds, they're finding new ways to benefit, and Conolly is starting to come around. New Orleans, for example, is exploring using the bonds to offer affordable mortgages to first-time homebuyers, which will be contingent on making the homes energy efficient and capable of managing stormwater on site. And in Buffalo, she says, the EIB will help the city use public funds to get green infrastructure onto private property—a tricky line to walk for municipal governments.

Benjamin Cohen, a director of Quantified Ventures, a firm that has helped structure virtually all of the EIBs to date, says more cities may find EIBs attractive as they run out of public space where green infrastructure projects can be easily installed. In Buffalo, the big opportunities for green stormwater management are now mostly on private land.

"Doing this on private property in a lot of cases, at this point, is a lot more cost-effective," Cohen says. "And there's a lot more area to do it."

In Atlanta, Jacobs Engineering Group designed all six projects funded by the EIB, with Pond & Company subcontracted for landscape architecture and plant selection, Hallauer says. The Buffalo Sewer Authority requires, in its green infrastructure contracts, that engineers work with landscape architects on the designs, says Kevin Meindl, ASLA, the authority's green infrastructure program manager. The William Street Project was designed by Buffalo-based landscape architects with the

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firm Wendel. Joy Kuebler, ASLA, a local landscape architect and trustee of the New York Upstate chapter of ASLA, worked on that project, along with a range of other Rain Check programs. The sewer authority's work is focused on clean water, climate resilience, and neighborhood equity, Meindl says, and it provides business for local landscape architecture firms.

Around the Great Lakes region, there is huge potential for green infrastructure investment, if cities and water utilities can find ways to finance it. According to an analysis by the P3GreatLakes Initiative, there's a $1 billion combined market for green infrastructure in Ohio, Minnesota, Wisconsin, Illinois, and Indiana, considering how much capital water utilities there could raise for green infrastructure based on current stormwater fees.

"Scale matters and connectedness matters in these projects, and the skill set that gets that the best is designers, and landscape architects as a subset of those designers really get that," says Rankin of the Great Lakes Protection Fund. "And another value proposition in environmental impact bonds is, once you start thinking about, 'This is the performance we want,' it expands the range of talent you attract to projects. Suddenly it isn't, 'Let's go hire large design/build engineering firms to put the sewers in.' It's like, 'Oh, we have to be concerned about this kind of connectivity and landscaping.'"

In Buffalo, the system of parks designed by Frederick Law Olmsted was meant to serve a certain vision of social equity, with public space distributed throughout the city, Meindl says. Today, the ecological and economic co-benefits of green infrastructure are well established. And Meindl says the sewer authority hopes the Rain Check programs are part of the ongoing effort to preserve the Olmsted legacy.

"We're looking at green infrastructure, particularly our green streets corridor, as almost a continuation of the network of parkway systems," Meindl says. "It's not just the major parks; it's also the spaces in between the parks, and connecting people with nature and green space in ways that are allowing them to have that interaction with nature."

Jared Brey is a freelance reporter in Philadelphia.

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