
BRIAN HUBBLE

# Treading water

## New York City remains vulnerable a decade after Sandy as initiatives to combat the threat of flooding plod along

BY CAROLINE SPIVACK

The memory of Superstorm Sandy looms large for Jim Tampakis. He remembers how some 6 feet of seawater transformed the streets of Red Hook, Brooklyn, into rivers and decimated his maritime equipment shop, causing hundreds of thousands of dollars in damages. Tampakis has made upgrades to brace his business for severe floods.

Despite a patchwork of temporary 4-foot-high barriers and inflatable dams the city plans to deploy 48 hours ahead of a storm, however, Tampakis said he feels just as vulnerable to a powerful storm surge today.

Nearly a decade after Sandy, critical climate resiliency projects remain stuck in a web of bureaucracy. A March 2019 audit by Comptroller Scott Stringer showed that the city had spent only 54% of $14.7 billion in federal grant dollars allocated toward Sandy recovery and resilience projects. Of the $473.2 million of that money earmarked for coastal protections, only 14% had been utilized.

The city has had more success with building out its smaller-scale green infrastructure initiatives, but just 21% of the more than 7,300 rain gardens, permeable surfaces and other efforts to soak up rainwater launched after 2016 were actually complete as of September, according to a report from the Center for an Urban Future.

Former Mayor Bill de Blasio advanced some key coastal protections, while other efforts have faced delays and plodded along, including the series of protections that make up the Lower Manhattan Coastal Resiliency project.

Those protections—which build off plans that came out of a federal design competition launched at the end of the Bloomberg era in 2013—are still largely in design and construction phases.

Mayor Eric Adams has pledged a multilayered approach to adapting the city to climate hazards including sea-level rise, heavy rainfall and extreme heat. A big piece of the approach, though, amounts to more planning and studying.

A citywide climate adaptation plan is due next month, and a strategic climate plan—an update to Mayor Michael Bloomberg's PlaNYC and de Blasio's OneNYC—is expected in April. To inform future projects, the Adams administration also wants to deliver on a 2017 law, releasing the city's first comprehensive

**14%**
**OF MONEY** earmarked for coastal protects has been utilized
**SOURCE:** New York City Comptroller's Office 2019 report

**19%**
**THE ESTIMATED** percentage of city homes and businesses vulnerable to flooding by 2050
**SOURCE:** First Street Foundation

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## City caught at a climate crossroads

**New Yorkers** would be hard-pressed to find a recent climate event more striking than the destruction brought on by Superstorm Sandy. The hurricane was a wakeup call to lawmakers and residents that swift action was needed to protect the city against the threat of flooding and heavy rains. But nearly a decade later, the city has used less than a quarter of the $472.3 million earmarked for coastal protection, leaving New York vulnerable to storms that climate experts predict will only increase in severity.

Mayors from Bloomberg to Adams have all released plans to improve flood resiliency that have been praised by advocates for their desire to distribute resources equitably. Many of these proposals, however, are grounded in years-long studies that fail to meet the serious urgency of the moment. As reporter Caroline Spivack lays out in "Treading Water," the lack of comprehensive citywide action has left New York at a climate crossroads.

Elsewhere in this issue's *Crain's* Forum: Researchers say community buy-in is key to ensure future climate action is streamlined. *Crain's* spoke to business owners and residents across the city to gather their questions on flooding and how they can be involved, then ran them by experts and city officials as a service to our readers.

As flooding becomes common, it's critical for business owners to know the risk associated with running, opening or expanding a business in the city. Data editor Amanda Glodowski found that more than a half-million city properties are susceptible to flooding, with the majority of them in Brooklyn and Queens.

*—Taylor Nakagawa, digital editor*

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# WATER

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study on environmental justice to identify which disadvantaged communities are missing out on climate-resiliency investments.

Planning is one thing; taking swift action to deliver on a plan presents its own funding and logistical challenges. As City Hall spokeswoman Kayla Mamelak acknowledged, the Adams administration is pouring funds into plans including resiliency projects, green infrastructure and stormwater protections, "but these changes won't happen overnight."

Climate change isn't waiting, however. The urgency of the moment puts the city at a crossroads of needing both comprehensive planning and swift action to protect residents and businesses.

As long-term efforts stack up, the city is taking short-term steps to share the responsibility for readiness with residences and businesses, including by providing inflatable dams and sandbags to vulnerable areas and through the release of a Rainfall Ready NYC plan with storm preparation guidance.

Policy experts argue that New York is in dire need of a comprehensive vision and that government must take swift steps to implement plans and policies. In the shorter term, researchers have called on the mayor to aggressively expand the city's efforts to build green infrastructure in combination with gray infrastructure such as storm drains and seawalls, and ensure that agencies have the money to maintain critical upgrades.

"THE REAL **STICKING POINT** IS GOING TO BE **CAPACITY FOR CHANGE.**"

## A "Band-Aid" solution

A decade after Sandy, the $100 million Red Hook Coastal Resiliency Project, which is to be funded by the city and Federal Emergency Management Agency grant dollars through the state, is only 60% through the design process. If all goes to plan, the city's Department of Design and Construction expects to complete the project's floodwalls, sliding gates and barriers by 2026.

Those protections would defend Red Hook, a neighborhood that's smaller than 1 square mile and is surrounded by water on three sides. They would provide significant protection from flooding, but they would not forestall the havoc of a Sandy-strength tempest.

That is a frustrating reality for Tampakis and some of his neighbors, particularly because just north along the East River, construction has moved forward on the nearly $1.5 billion East Side Coastal Resiliency Project, designed to protect a 2.4-mile stretch of Manhattan from a 100-year flood and some 30 inches of sea-level rise.

"It's upsetting that other areas have better systems because they have better budgets," said Tampakis, who is an organizer with Resilient Red Hook, a grassroots group that advocates for climate initiatives for the working- and middle-class neighborhood. "But, you know, we're just Red Hook, so we're used to getting a little slapped around every now and then."

Tampakis' concerns are emblematic of what business owners in at-risk communities across the city grapple with as they wait on major coastal barriers and sea-level projects first envisioned during the de Blasio administration. With each passing year, they face a growing sense of vulnerability. Storms stand to become more and more dangerous due to climate change.

What might truly make a difference for New Yorkers is the resources the city ultimately pours into making its resiliency visions a reality.

"I think sometimes our memories are a little bit short-lived, and we kind of move on from the last crisis until we get hit by the next one," said Randy Peers, president and CEO of the Brooklyn Chamber of Commerce. "And that's unfortunate for the businesses that lived through Sandy. For them, the big-picture projects matter because, honestly, long-term storm resiliency can only be undertaken by the government. They can't do it alone."

In July the city unveiled its Rainfall Ready NYC plan with new flood maps and advice for property owners and tenants about how to prepare for storms. New York City Chief Climate Officer Rohit Aggarwala, at an August 16 City Council hearing, called it a "Band-Aid" solution designed to complement but not substitute for long-term planning for floods.

**JIM TAMPAKIS** doubts Red Hook is ready.


**KAREN BLONDEL** wants the city to engage residents on solutions.

PHOTOS: BUCK ENNIS

## High stakes

Developing solutions to the city's flooding needs is a high-stakes matter for New Yorkers, their property and their livelihoods. In 2019 a whopping $101.5 billion in property value was located on city land vulnerable to powerful coastal storms, according to a report by Stringer.

At least 121,200 properties are currently at risk of flooding—14% of the city's buildings—according to a 2020 national flood risk assessment conducted by the First Street Foundation, a research and technology nonprofit working to define climate risks. By 2050, the report says, that number is expected to increase to 166,875 properties—a nearly 38% rise in homes and businesses vulnerable to flooding.

Creating a more resilient city is also a matter of life and death.

Sandy led to the deaths of 44 New Yorkers while inflicting what the city estimates was $19 billion in damages and lost economic activity across the five boroughs. Last year the remnants of Hurricane Ida pummeled the city with more than 3 inches of rain during an hour in September, killing more than a dozen New Yorkers and underscoring the challenge of preparing for heavy rains.

By the end of the century, the New York City Panel on Climate Change estimated, the city could experience up to 25% more annual rainfall than today, along with a 50% increase in the amount of days with more than 1 inch of rain.

At a City Council hearing in April, Kizzy Charles-Guzman, executive director of the Mayor's Office of Climate and Environmental Justice, said the city will not be able to finalize big resiliency plans until the U.S. Army Corps of Engineers releases a feasibility report on New York and New Jersey harbors and tributaries. Data and analysis in the report, Charles-Guzman said, are critical to the city's plans and will inform how officials advocate for the city's next set of major federal investments.

A draft of the report could come out as soon as this summer, but a final version is not anticipated until 2024.

Climate advocates including Cortney Worrall, president and CEO of the nonprofit Waterfront Alliance, have praised the city for its commitment to address flooding but have acknowledged the bureaucracy embedded in the planning process.

"The real sticking point is going to be capacity for change," Worrall said. "Are we going to be investing in improving the processes that will lead to better and faster outcomes? Are we going to be putting the resources and staffing behind the projects in order to protect the most vulnerable communities and, eventually, all communities from the effects of climate change?"

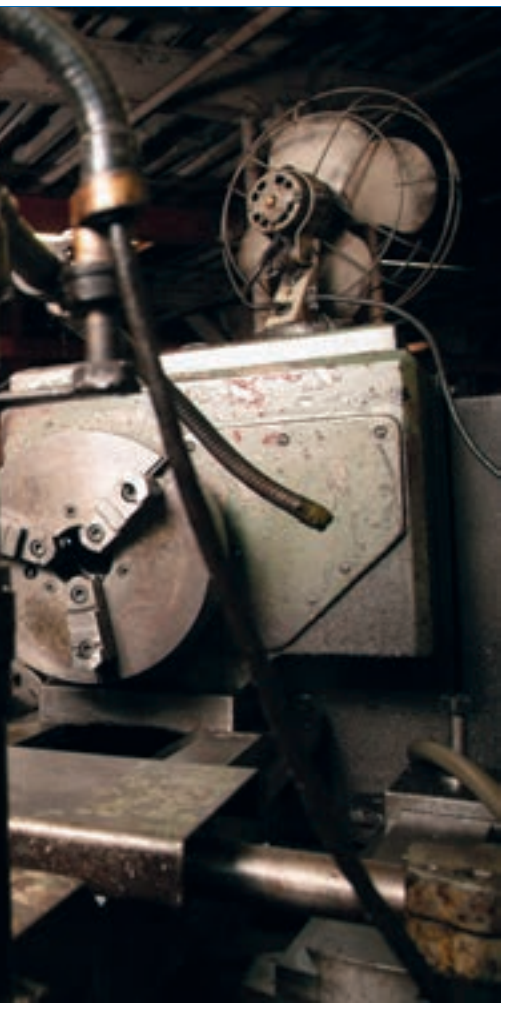
## Community buy-in

Long-term projects to protect neighborhoods at risk are a yearslong undertaking that often require lengthy city, state and federal approvals. Experts say it's key to get community buy-in. Otherwise city officials risk slowing the process and polarizing communities.

The starkest example of that is the East Side Coastal Resiliency Project. After years of community engagement, the de Blasio administration scrapped its initial plan in 2018 in favor of a controversial vision that involved bulldozing and rebuilding East River Park to make way for an 8-foot-high storm-surge barrier. Lawsuits and protests have since slowed the process.

"The biggest lesson learned on all of our climate planning is that we need to be working with the communities from the start, and we can't stop working with the communities," said Amy Chester, managing director of Rebuild by Design, an environmental and urban planning nonprofit. "We don't get to design and then say, 'OK, we're done. Thanks.'"

For vulnerable areas such as Red Hook, that means having conversations about what residents would like to see in their neighborhood, as well as being painstakingly transparent with property and busi-



ness owners about why certain decisions are being made.

Karen Blondel, a longtime Red Hook resident and president of the NYCHA Red Hook West complex, acknowledged that it can be tough to get residents who are busy with work, child care and other commitments to make time to consistently engage in long-term neighborhood projects. That's why it's critical that the city takes the time to reach an array of locals, she said.

"A lot of times an official's vision is not the same vision as the community's," Blondel said. "They have to understand that you're supposed to be engaging your constituents and elevating their voice, not your own."

The flood barriers planned for Red Hook, for instance, will not protect the Food Bazaar supermarket on Van Brunt Street or neighboring warehouses and commercial spaces. Mostly due to maintenance and operation concerns, FEMA rules dictate the city avoid building protections on private property.

But after fielding community concerns, the Department of Design and Construction said it is exploring an independent protection system for a cogeneration facility that would keep electricity, heat and hot water running at the Food Bazaar and 50 nearby homes and offices when a major storm strikes.

## Sudden downpour

When Ida hit, the flooding was different than it was during Sandy. The city's overloaded stormwater system, which wasn't built to accommodate such a downpour, flooded basement apartments and businesses, killing 11 people trapped inside.

The city has a coastal storm evacuation plan, but it has struggled to develop a flash-flood evacuation plan because of the tough-to-predict nature of floods. NYC Emergency Management said it is working to update its flash-flood plan with a more aggressive early-warning system, among other measures, by the end of this month.

In Sunnyside, Queens, during Ida, the intersection of 48th Avenue and 45th Street turned into a pond. Ramiro Mendez, who owns Mexican restaurant De Mole on the southeast corner, said the flooding partially knocked out a basement wall and caused roughly $25,000 in damage to the 17-year-old family business.

Mendez, who did not have flood insurance and said he still doesn't because of the cost, said his insurance company covered only $5,000 in damages. The rest he was able to pay from a grant he secured through the Queens Chamber of Commerce.

"I don't know what we would do if this happened again," he said. "We'd probably have to move."

Peers, the Brooklyn Chamber president, said he worries how more frequent, more intense rains and flooding could send insurance costs soaring.

"The more of this that happens, insurance costs are going to go up," Peers said. "How is that going to impact a business or a building's ability to get insurance?"

## Soaking up the problem

The Department of Environmental Protection has committed to upgrading the city's outdated stormwater infrastructure, but it's slow-going, expensive work.

Each year the city invests hundreds of millions of dollars to expand the capacity of the stormwater system, including a $2.5 billion initiative in southeast Queens that began under de Blasio in 2018.

To reduce runoff from private properties, in February the DEP finalized a rule that requires all newly developed or renovated properties keep their stormwater out of the city's sewers.

Climate experts say a less costly and potentially speedier way to reduce street flooding would be through the city's green infrastructure program. Launched in 2010, the effort has grown to be one of the largest in the country, with 11,000 rain gardens, catch basins, green roofs and other measures that help absorb excessive rainwater. Following Ida, the city rolled out several efforts to beef up its green infrastructure, and on Staten Island the DEP maintains 75 natural drainage corridors known as bluebelts.

But there's room for improvement. According to the Center for an Urban Future, the city has completed only a fifth of the green infrastructure projects it began in 2016, and those projects would triple the program's footprint once built.

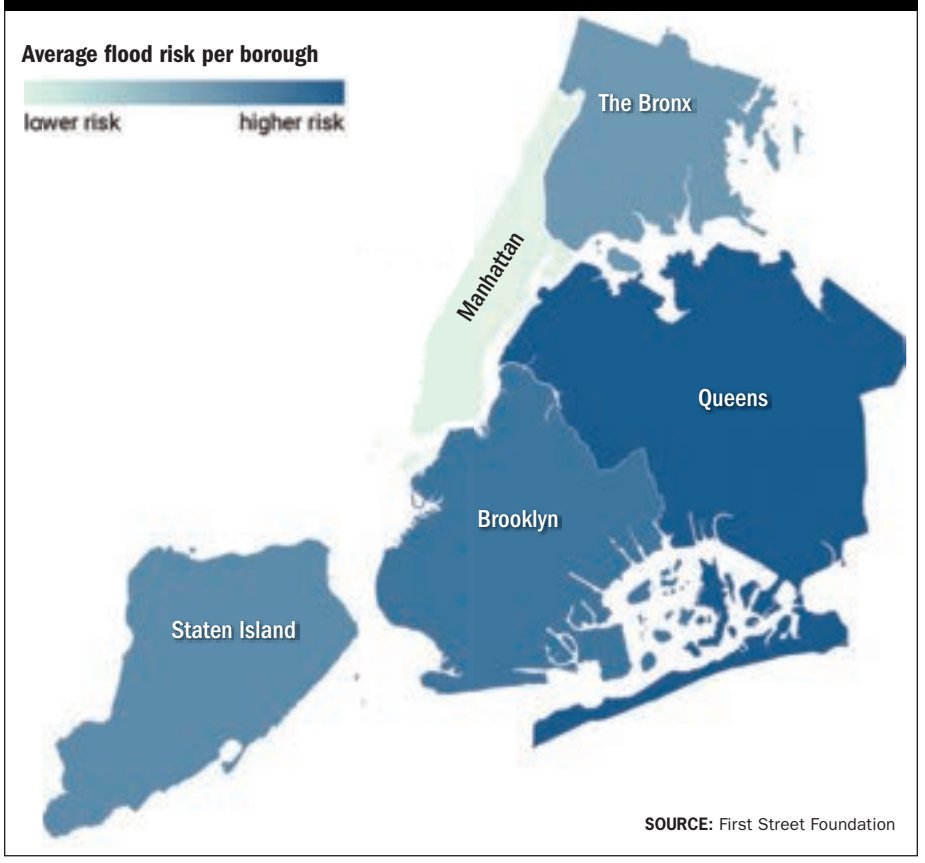
Maintenance is another key issue. According to a 2019 audit by Stringer, of 102 DEP rain gardens that auditors inspected in Brooklyn, Queens and the Bronx, the majority likely would not function efficiently due to shoddy maintenance.

At the New York Hall of Science in Flushing Meadows Corona Park, Queens, its president and CEO, Margaret Honey, said she believes more green infrastructure in the surrounding area, along with proper upkeep, could go a long way toward mitigating the museum's flooding threat.

The Hall of Science, which shut down in March 2020 due to the Covid-19 pandemic, had its doors open for just seven weeks before Ida devastated the educational center. The museum has since managed to reopen, thanks in part to city support, as it works toward a full recovery. But Honey estimated the final toll of the damage once all the work is complete could reach $25 million.

"Climate is no longer on our side," she said. "From a larger perspective of us as a city, we're going to need for there to be mechanisms put in place that enable greater degrees of collaboration, cooperation and responsiveness."■

**Queens and Brooklyn have the highest risk of flooding in the city, while Manhattan has the lowest risk**




**SOURCE:** First Street Foundation

MAP: DATAWRAPPER

**RAMIRO MENDEZ** can't afford flood insurance.

**MARGARET HONEY** says proper upkeep is critical for green infrastructure.

PHOTOS: BUCK ENNIS