



Fall 2017

OCUS

A Publication of
AIA New York
Volume 79, Issue 3
\$10

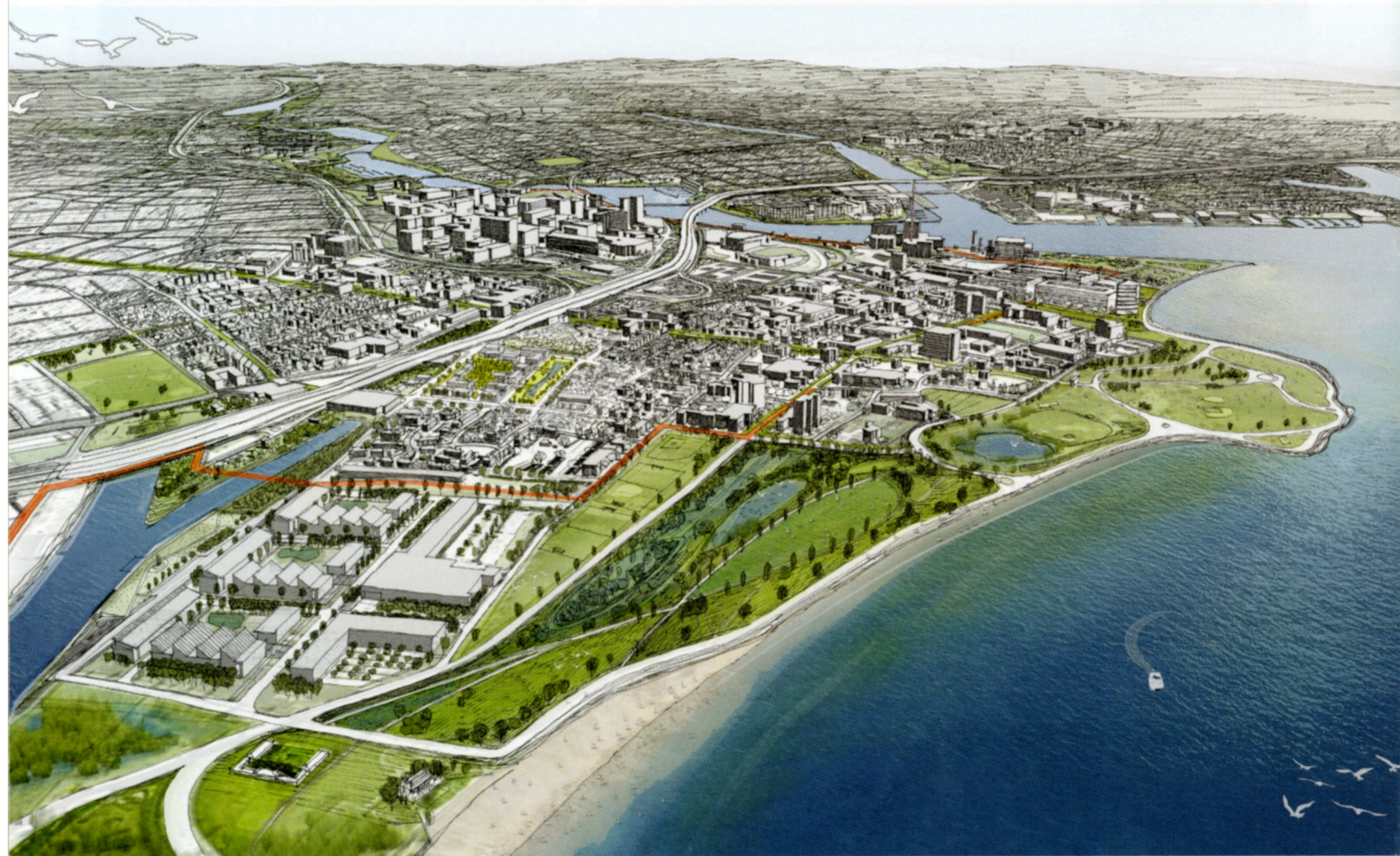
Resiliency: Five Years After Sandy
(And in the Wake of Harvey, Irma, Maria, and...)

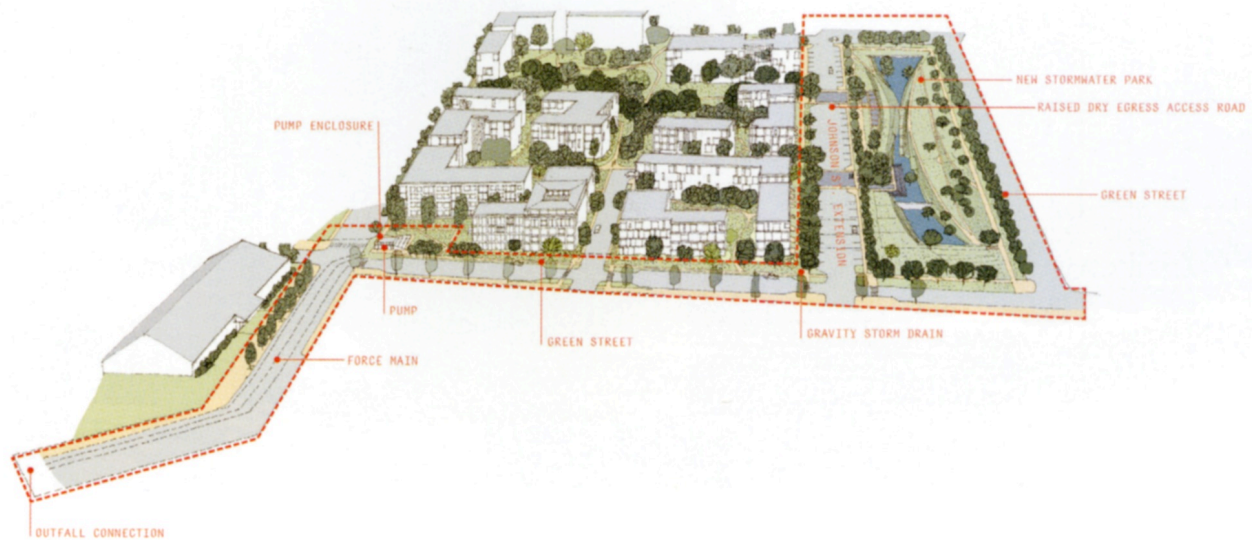
FEATURE

WHERE RESILIENCY HITS THE ROAD

How those at the forefront of adapting to climate change and natural disasters are implementing effective projects at scale.

BY LISA CHAMBERLAIN





ABOVE AND LEFT
Resiliency funding is being leveraged to drive economic development on the waterfront in Bridgeport, Connecticut.

No other approach to design encompasses the existential concepts of time and space like resilient design. The response to climate change is necessary at all scales — from the one-acre public plaza to the regional coastline to the multistate watershed. Resilient design must also consider how rapidly changing conditions will play out over time. And yet, in these early days of planning for climate change, merely framing the issues and setting priorities can be challenging for resilience officers charged with institutionalizing policy.

Connecticut: Rebuild By Design

David Kooris offers a good perspective on the different approaches and scales at which resilience officers must operate. As director of Rebuild By Design for the state of Connecticut, he works across multiple federal and state agencies while overseeing implementation of the first coastal project in the South End neighborhood of Bridgeport, CT. Fortunately, he was already accustomed to thinking regionally: he'd previously worked at the Regional Plan Association of New York, New Jersey, and Connecticut, and then as the director of Planning and Economic Development for Bridgeport. So Kooris had a head start on setting resilient design policy, because he already had a clear economic development objective and previous experience in sustainability planning.

"Resilience is very broad in terms of issues, and it doesn't say anything about what your goals are for the community," says Kooris. "So how do you simultaneously leverage the impetus of events like Hurricane Sandy to be a conduit for this broader

conversation, but narrow enough so it doesn't become a conversation about everything? You have to understand what type of community you're trying to create, and resilience will help you achieve that, despite stresses and shocks. The advantage in Bridgeport is that we had a legacy of sustainability planning, economic development, and social equity."

Efforts to revitalize Bridgeport have happened in fits and starts, often stymied by both economics and politics. But winning a \$10-million grant from Rebuild By Design, the federal government's competition, might move the needle. Initiated by the Department of Housing and Urban Development under President Barack Obama, the grant provides funding for the first pilot project in Connecticut, which is focused on the South End neighborhood of Bridgeport, a low-lying peninsula exposed to sea-level rise and storm surge. The plan seeks to elevate a main thoroughfare, build a waterfront berm, and establish offshore breakwaters to better protect and connect the neighborhood.

Indeed, this work may finally unlock the potential of the entire South End area, where redevelopment efforts had stalled because much of it is in a floodplain. Plans to redevelop the former Remington Shaver site into a new mixed-use community have been struggling through real-estate crashes and flooding for more than a decade. But the resilient design pilot project in South End — led by Waggoner & Ball, a New Orleans-based architecture firm that has developed an expertise in water management planning since Hurricane Katrina — is designed to protect a flood-prone area while stimulating development.



When asked if money for resilience is being used as a real-estate development tool, Kooris doesn't miss a beat: "Development is going to result in local taxes and jobs, and improve the prospects and reduce the expenses of the existing neighborhood. Folks who have been here for years are saddled with high property taxes, and industry has left the city behind, resulting in fewer jobs. So if the public sector needs to prime the pump, that's a good thing. The magnitude of these public dollars being leveraged will result in many multiples of private sector dollars."

Colorado: First Steps

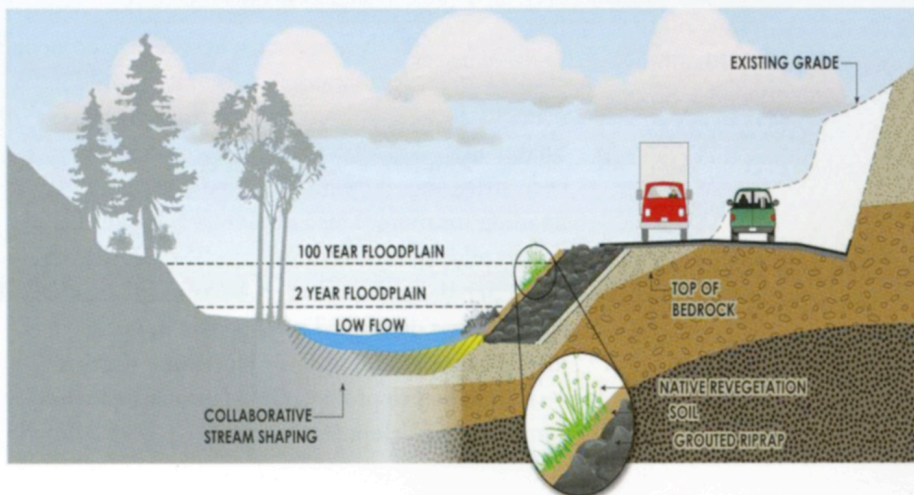
Since 2012, the state of Colorado has experienced five presidential declared disasters totaling an estimated \$5 billion in damage, including devastating wildfires in 2012, and unprecedented flooding due to rain over three days in 2013. High-velocity water sped through mountain canyons, carrying debris for miles, forcing 18,000 people from their homes, dam-

aging infrastructure, and washing away roads. Within days of that historic flood, Governor John Hickenlooper formed the Colorado Resiliency and Recovery Office, which is run by Molly Urbina, a land-use planner with expertise in zoning and real estate.

"With a sense of urgency, we had to think about how to improve resilience," says Urbina. "The word was not even well defined for us, so we had a summit in June 2014 that brought together federal and state people to sit down and talk about what sustainability and resiliency mean. There was confusion about these terms."

For a non-coastal area with home-rule governance, environmental awareness was more about local issues like recycling and sustainable building materials. The first task of the new state agency was to put together a resiliency framework to identify priorities and provide guidance for localities about how to implement plans. For example, most county flood maps were out of date and existed only on paper. The state provided funding to update and digitize flood maps, and to use

THIS PAGE
In Colorado, roads are being moved away from rivers and streams.



a geographic information system to identify where flooding would likely cause landslides, debris flows, and rockfall. As the saying goes, you can't manage what you don't measure.

But measuring isn't necessarily managing, either. In a home-rule state like Colorado, one of the few things the state has control over are the roads. And a major cause of distress from the massive flooding concerned the proximity of roads to rivers. Road closures from massive flooding is a serious matter, as communities are entirely cut off from each other when the road is washed out. The new state resiliency office is coordinating with the Colorado Department of Transportation (C-DOT) and the Department of Natural Resources to develop a plan for rebuilding critical roads in a way that prevents closures in times of flooding.

"As C-DOT is working on a road, it focuses on the road," says Urbina. "Natural Resources looks at how to mitigate overflows, but doesn't say much about where the road goes. But these things need to be looked at in tandem. Moving the roads away from rivers is something only the state can do, so that is one of our top priorities."

For professionals steeped in the design of cities in the age of climate change, this may not sound like

cutting-edge resiliency, but it is the level at which most of the U.S. is operating when it comes to climate change. Defining terms, setting priorities, and coordinating agencies are the tedious but necessary first steps taken by most resiliency officers.

Los Angeles: Focus on Building Stock

By far the largest coordinated effort to advance resilient policies at the city level is led by the Rockefeller Foundation's 100 Resilience Cities program, launched in 2012. Cities around the world were invited to submit an application, and those selected would receive two years of funding to hire a chief resilience officer and develop a framework for advancing resilient priorities. The first 32 cities selected in 2013 included Los Angeles, where Marissa Aho, who has a background in urban planning and landscape architecture, was appointed by LA Mayor Eric Garcetti to head up the new office and oversee the implementation of the city's resilience agenda.

Changing the scale of resiliency from state to city necessarily changes the perspective, and in Los Angeles the focus is on the building stock. The first big push so far has been to retrofit homes to current seismic standards. The city held two major events that brought together thousands of property owners



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with the building trades to facilitate these retrofits, which are mandated by city ordinance.

LA has an estimated 13,000 soft-story buildings, multistory buildings with ground-floor spaces and often storefronts, which are vulnerable to seismic shock due to a lack of shear wall at ground level. Many of these buildings contain rent-stabilized housing. "We are preserving lives, increasing safety, and also trying to preserve the affordable housing stock," says Aho. "Part of resilience is being proactive. While our earthquake threat is something we've always lived with, the history of cities has been to make changes to policy after an event. With Sandy in New York, and Katrina in New Orleans, the event spurred the action. We aren't waiting for an earthquake; we are implementing seismic retrofits proactively."

It is indeed important and necessary work, and in the broadest sense of resiliency, it is certainly appropriate. One could make a different argument, however, that the city had already waited to address a known threat, and is using the impetus of climate change to address an issue that is not in fact caused by climate change. But the reality is that the city doesn't have much control over climate-induced crises, like water shortages, so naturally the city




Soft-story buildings are vulnerable to earthquakes. In Los Angeles, many are being reinforced.

is going to gravitate towards projects it can do something about.

Cities: Leading on Climate Change?

"It's hard for a city to bring about change at their scale because it's much broader than just that city,"

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OF ARCHITECTURE
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says Alex Wilson, executive director of the Resilient Design Institute, a nonprofit founded in 2012. Wilson has a long history with sustainable design initiatives, but pivoted to resilience in the wake of hurricanes Katrina and Sandy. “Preparing for climate change, and certainly the cause of climate change, can’t really be addressed at the city level.”

And that, unfortunately, leaves some of the biggest issues unaddressed. Wilson, for example, identified a serious matter that wasn’t on anyone’s radar: how to plan for the medium-term impacts of power outages. “You could be in a building that isn’t affected by the disaster at all,” says Wilson. “Hurricane Katrina flooded buildings, but hundreds of thousands more buildings lost power. After Katrina, we advised and wrote New Orleans Principles,” a report that describes 10 organizing principles to guide reconstruction and redevelopment of the city. “One of the 10,” he continues, “was to provide passive survivability – to make sure that what we’re designing and building today will keep people safe in case of a power outage. New York City is a case in point. A lot of the high-rise glass condos that have gone up over the last 10 years will be uninhabitable within hours of a power outage.”

Are cities leading on climate change, as has become the conventional wisdom? A recent article written for Greentech Media by the former director for the D.C.

government’s energy division debunks this myth. In this well-researched piece, the author makes the case that cities are mostly taking credit for things they didn’t initiate. For example, renewable energy programs are usually state-driven, and most solar power and wind power are neither generated within cities nor provide power to cities. Meanwhile, energy consumption in cities is increasing, and many cities are essentially using carbon accounting tricks to show reductions to achieve their “net-zero” carbon emission goals.

That’s not to say that city-led policies are for naught; they will surely have a positive impact on people’s lives. But the question every resilience officer has to wrestle with is, how closely should resilient plans be tied to climate change?

Kooris of Connecticut answers the question this way: “I’m not a fan of creating a ‘resilience’ plan. Incorporate resilience into your other planning efforts. Identify what stresses and shocks would prevent you from achieving the goals of those plans. Resilience is really a risk mitigation strategy to help you reach the goals you’ve already set.”

And then hope for the best.

Lisa Chamberlain has written for the New York Times, Metropolis, New York Magazine and other publications. She recently launched the Common Edge podcast.



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