Can architects engineer smart solutions to garbage pileups? // (Seth Wenig/AP)

Is Garbage a Product of Bad Design?

JESSICA LEIGH HESTER OCT 19, 2017

A team of architects and planners has set out to prove that heaps of waste aren't an immutable part of a city's topography.

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New York City is an island of imported goods. The city's main export, though, is trash.

The Department of Sanitation (DSNY) heaves more than 12,000 tons of waste each day; private haulers are conscripted to lug some festering freight, too. Though some organics or recyclables are diverted, most of the debris ends up offloaded in landfills hundreds of miles away.

But before garbage is carted off, it's a quality of life issue on the ground. With bags heaped high, curbs and sidewalks become canyons through towering landscapes of rubbish. On humid days, an acrid, prickly smell settles on certain corners, and the festering pylons have given rise to a whole genre of gripes. The noxiousness has become a local character trait. "Hot garbage wind, and other things that smell in the summer," one *Gothamist* headline declared in 2016. On a list of "22 Smells New Yorkers Will Never Forget," *BuzzFeed* offered a more detailed taxonomy of the trash itself, differentiating between the maleficence of recently deposited stacks and the juicy lots that had been marinating, rotting and baking in the midday sun.

Last year, a cast of collaborators, led by a team of architects and planners, wondered if the problem of trash was partly a design one. They set out to prove that the heaps weren't an immutable part of the city's topography, and enlisted designers and officials to engineer possible solutions. The Zero Waste Design Guidelines, released this week, are the fruits of this messy labor.

The guidelines, backed by the Rockefeller Foundation and the Center for Architecture, offer a preliminary and highly customizable blueprint for how New York could grapple with its daunting piles of detritus—and call on designers and architects to be at the forefront of research and policy to drive the city closer to the goal of sending zero waste to landfills by 2030. That target is one tenet of Mayor Bill de Blasio's larger "One New York" plan, which outlines an ambitious agenda for broad sustainability and resilience measures.

Since landfill-clogging waste releases methane gas, it's an obstacle to the administration's pledge to drastically curb emissions—a commitment that officials cast as a defiant response to federal fumbling of the Paris agreement. "Better designed, more effective, and more intentional waste management is a necessary part of the City's effort to meet its climate goals," said Mark Chambers, director of the Mayor's Office of Sustainability, in a statement about the guidelines. And that's where designers and architects come in: Rethinking the way people interact with waste from the chute to the street.

> **Garbage is "often considered operational, or a hygiene issue, not a land-use issue."**

Architects have already intervened in complex urban problems such as mobility and resiliency: They've adapted the street for bikes and pedestrians, and to siphon stormwater, says Clare Miflin, a partner at Kiss + Cathcart, Architects and the project's lead author. Moreover, Miflin says, architects are already concerned about waste—both the physical castoffs generated during construction and the more abstract problems of inefficient windows, lights, and other energy sucks. But somewhere along the line, trash had slipped through the cracks. "Nobody's applying design to waste," Miflin says.

In fact, waste is a surprisingly fundamental planning issue. "It's often considered operational, or a hygiene issue, not a land-use issue," says Juliette Spertus of the infrastructure planning firm Closed Loops, who collaborated on the report. "But it's something that stored and has a presence."

Miflin has experienced that oversight in buildings she's designed. She learned that the trash facility in one of her buildings wasn't working for the building's super, who had to duck to get out of the way of glass toppling down the chute.

Through a series of case studies, the guidelines propose best practices for anticipating and dealing with waste inside residential, commercial, and institutional buildings and on streets—and suggest prioritizing a waste-management plan while a building project is still in its zygote phase. First, conceptualize projects with waste in mind: Does it need a chute, or a compactor? Then, consider how waste will be shuttled through a building, stored, and conveyed to haulers.

Miflin and her collaborators worked with the New York City Housing Authority and other city partners to study existing protocols in various buildings, including Manhattan's 11,250-unit Stuy Town apartment complex, the largest development piloting the DSNY's curbside compost program. The complex has retrofitted each of the bins with magnetic closures to stave off odors and vermin.

In another case study, Miflin profiles Martin Robertson, a building manager in Harlem who functions as a kind of compost concierge: Residents drop off their caddy of organic waste, and he consolidates it, washes out the containers, and returns them. This way, he sidesteps the unsavory problem of storing organics in a small, unventilated room.

A one-size-fits-all approach won't work across various typologies of buildings, but the guidelines include a waste calculator, which architects can use to gauge what the waste burden might be, based on a building's density.

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Waste is a shapeshifting target—as consumption habits change, so will the fouled remnants of it. One of the report's case studies takes stock of the uptick in a building's cardboard boxes, the products of residents ordering goods online. In that scenario, Miflin says, a baler in the basement could help squash the unruly boxes, compacting them into a more manageable size.

On a more macro scale, the mechanics of garbage collection could be retooled by submerging containers underground to be raised by cranes, or by dedicating parking spaces to shared bins. Street vendors could use a card to access a series of sheds to drop things off without adding to existing piles.

The report lays out a business case for a pivot. The compost concierge says that his collection method means he doesn't have to wash the chute as often, because it's not smeared with rodent-attracting scraps of food. That saves time and money. Modest interventions at the front end could pay off later. Presently, commercial buildings aren't required to designate any indoor space for storing recyclables. The consequence is that many end up stashed on the street. Good intentions are scuttled by economic realities, says Christina Grace, a food systems consultant at Foodprint Group who collaborated on the report. "When real estate is $300 a square foot, do you want to put recycling in there?" One recommendation entails asking businesses to put together a storage plan from day one. "Getting them to have a plan would push the needle tremendously," Grace says.

Despite a sizable compost program stationed at local farmer's markets, New York City lags far behind Toronto and other major metros with sophisticated organics schemes. Since 2011, GrowNYC's 55 drop-off sites have collected a total of 9.5 million pounds of scraps —that's less than half of one percent of the organic waste intercepted before it languishes in landfills, explained Emily Bachman, the compost program manager for GrowNYC, at a recent Food Tank Summit.

Intuitive interventions could help reverse course without shaking things up too blatantly. "To make something normalized, it has to be as convenient as your current behavior," says Bridget Anderson, DSNY Deputy Commissioner for Recycling & Sustainability. "That doesn't have to be, 'I roll out of my bed and I put it in a magic system,'" she adds—the key is that it's not too onerous compared to the less-wasteful alternative. Good design, Miflin says, "should change behavior without people even noticing."

There's a long road ahead before any wholesale adoption of the guidelines. Any new regulations that involve tweaks to the existing building code would need signoff from multiple city agencies, including City Planning and the Department of Transportation, both of whom participated in this first stage.

While waste *is* a sticky conundrum, Spertus says the guidelines are signaling a need for solutions—among them, more robust and precise data, bringing the metrics of trash up to speed with smart city technology such as sensors that sniff out air quality. "This is a gray area," Spertus says. "And we're shining a light."

About the Author

Jessica Leigh Hester
@JESSICAHESTER / FEED

Jessica Leigh Hester is a senior associate editor at CityLab, covering environment and culture. Her work also appears in the *New Yorker, The Atlantic, New York Times, Modern Farmer, Village Voice, Slate,* BBC, NPR, and other outlets.

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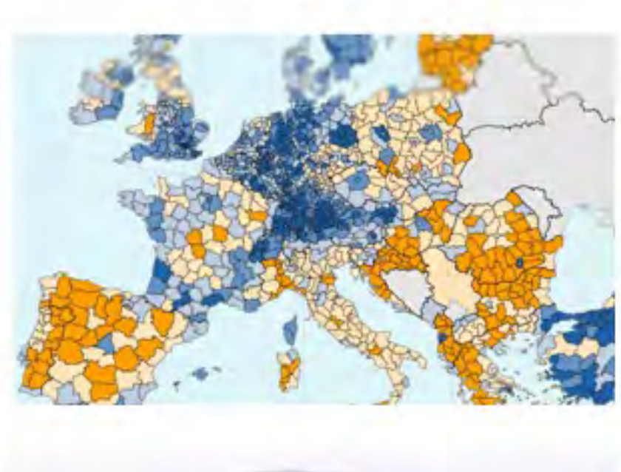

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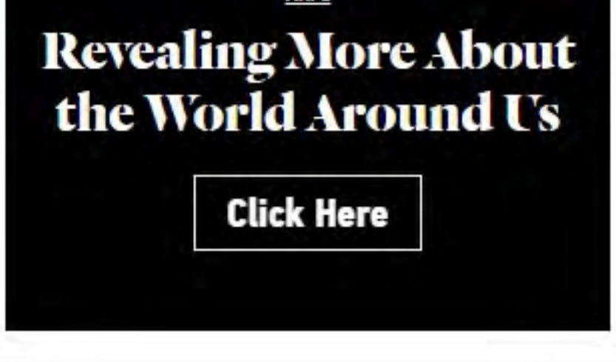

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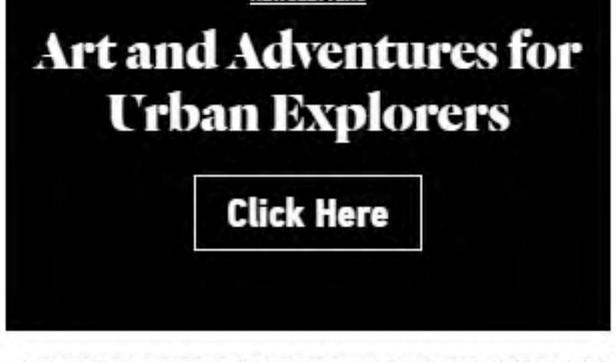

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