More than 100 residents of Chicago’s Austin neighborhood called 311 in August 2023 to report flooding in their basements or on the streets after a storm dumped nearly 4 inches of rain on their neighborhood, city records show.

Hura Hillman was not one of them.

With a first floor that’s a few feet higher than the neighbors, the one-and-a-half-story bungalow where Hillman lives with his 80-year-old mother, Bernice, had one advantage over their neighbors.

But Hillman’s home got another boost from a special type of alley the city had installed a year earlier behind the house.

A “green alley.”
When it rains, the green alley behind the home in the 5400 block of Race Street acts like a sponge and a runway for rainwater, letting some water seep into the ground while the rest gathers into a grooved channel and streams into a manhole that connects to local sewers. Its underground trench system can absorb thousands of gallons of rainwater every hour.

The special infrastructure does have its limits.

A month before the August 2023 storm, when a far worse deluge dropped more than 7 inches of rain over a single day on the West Side last summer, sewage water seeped into the basement of the Hillman household.

“It flooded bad,” said Hillman, 55. “The hardest part was trying to keep the water away from the furnace.”

The new pavement behind Race is one of the roughly 400 green alleys city workers have built around Chicago since 2001 to help neighborhoods handle storm water runoff better and prevent surrounding basements from flooding.

Wherever they are implemented, the green alleys have proven popular, welcomed by neighbors like Hillman who had grown tired of the crumbling pavement the projects typically replace. Experts say the permeable alleys and other forms of “green infrastructure” that break up pavement to let rainwater soak into the earth are becoming increasingly needed as climate change makes storms more erratic and damaging.

But more than two decades after the first green alley was installed, an Illinois Answers Project analysis of their locations shows they’ve been heavily concentrated in some of the Chicago neighborhoods least prone to flooding. Neighborhoods like Austin are left to wait in line amid a city construction process that prioritizes ward map boundaries before residents’ needs.

Green alleys are expensive — converting one block of an alley can cost up to $500,000 — and the city funds the construction of only several dozen a year, with the end result being denser, more affluent wards receiving more benefit from the program than poorer wards that are more spread out.
A solution in search of funding

It was the early 2000s when the Chicago Department of the Environment began turning its attention in earnest to climate change and its risks to the city, according to Suzanne Malec-McKenna, who began working for the department in 1993.

The department funded a pilot program that paid for four alley replacements between 2001 and 2006, leading to the publication of a “Green Alley Handbook” in 2010 that showed how the permeable surfaces could be used with other green fixtures, like rain gardens and green roofs, to sop up rainwater and take pressure off the city’s sewer system.

By that time, the program had shown its value, said Malec-McKenna, who led the department as commissioner from 2007 until Mayor Rahm Emanuel took office in 2011 and moved to dissolve the agency.

“We were looking for any opportunity for permeable surfaces to start gathering our rainwater,” Malec-McKenna said. She noted that Chicago has nearly 2,000 miles of alleys, more than any other U.S. city. But unlike Chicago’s streets, most alleys have no sewer drains.

“The green alleys were really part of [the city’s plan for] how we manage stormwater at the residential level,” she said.

The program soon ran into a problem: each green alley project’s deep landscaping work and coordination with nearby sewer mains made it far more expensive than a typical repavement job.

By the time Mayor Rahm Emanuel dismantled the Department of the Environment in 2012, green alley construction had no dedicated funding source. Increasingly, the only way neighbors could see one built was by asking their alderperson to dip into their annual “menu” fund for infrastructure.

Relying on those menu funds for the green alleys puts each council member in a bind, according to Far North Side Ald. Andre Vasquez (40th). Each alderperson is allocated $1.5 million in menu funds per year and must balance special projects against bread-and-butter infrastructure needs like street resurfacing and sidewalk repairs.
“Doing the green alleys really does help when you have that permeated pavement,” Vasquez said, adding that a long list of his residents have asked for them. “The challenge is, it costs anywhere from $250,000 to half a million dollars for one block, so we have to tell our neighbors that, at best, we can do two or three a year.”

Each green alley takes at least three weeks to build, according to Erica Schroeder, a spokesperson for the Chicago Department of Transportation. Construction involves excavating 7 feet beneath the surface and installing a 5-by-4-foot trench filled with “porous stones and a perforated pipe” to channel the water, Schroeder said.

In 2021, city leaders set aside a portion of the Chicago Works capital plan to boost green alley construction. Since then, the Chicago Department of Transportation has invited each of the city’s 50 alderpeople to select one green alley project per year, not including any projects they fund through the menu program.

Thanks to the new policy, the city averaged nearly 30 new green alleys each year between 2021 and 2023, up from an average of 24 per year between 2007 and 2020, according to transportation department records. The department has fallen short of 50 new alleys per year because of “variables throughout the design, engineering, utility coordination, and construction processes,” Schroeder said.

It’s not nearly enough to meet the need, Vasquez said.

“We definitely need more money for green alleys, whether it’s state, federal — whatever it means for infrastructure to get that done,” he said. “Because it’s clear we don’t have many solutions for [flood control in] alleys. And this is one that’s effective.”

A typical city-installed green alley can divert more than 3,700 gallons of rainwater from the sewers every hour, Schroeder said.

Similar green alleys built by the Metropolitan Water Reclamation District are built to hold at least 30,000 gallons of rainwater each — approximately 1 inch’s worth of rainfall in a typical location, officials from that agency said.
Most green alleys on the North, Northwest sides

Amid the overwhelming demand for green infrastructure, Vasquez said he was surprised to hear that as of December 2023, his ward had the second-most green alleys of any ward in the city, with 23.

Green alley construction has skewed heavily toward the city’s North and Northwest Side. Out of the 10 Chicago wards that have the most green alleys, nine either border the downtown area or are on the North Side, like Vasquez’s 40th Ward.

Fewer than one-third of the roughly 400 green alleys built through 2023 were sited in one of Chicago’s South or West side wards, city records show. Those same wards accounted for nearly three out of every five flood-related 311 complaints filed with the city last year.

Ald. Monique Scott’s 24th Ward, which includes most of the North Lawndale neighborhood on the city’s West Side, was among the hardest hit by last year’s storms. As of last December, the 24th Ward had just five green alleys.

“I’m in a community where we get a lot of flooding,” Scott said in an interview last month. “I wish we could have [green alleys] in all of my 49 miles of alleyways.”

Scott has more urgent infrastructure needs for her ward than many of her colleagues do, she said — not only because of the 24th Ward’s geographic size, but also because of its historic lack of public and private investment. That means her ward is being left behind by the city’s policy of allocating the same amount of infrastructure money — and the same single new green alley per year — to each of the city’s 50 wards.
The 40th Ward (left) is home to 23 green alleys, the second most in the city, despite ranking 19th in flood-related complaints between 2021 and 2023. The 24th Ward (right) had more complaints during that period but only has five green alleys. Data from City of Chicago, OpenStreetMap. Maps and analysis by Cam Rodriguez

During a City Council committee hearing held to discuss flooding issues last October, Scott called on city officials to look for funding sources for the green alley program outside of menu dollars. In response, transportation department engineer Anne Zhang pointed to the capital plan that pays for each ward to add one new alley per year but said the department “can explore other sources of funding to expand the program.”

The department has not since identified any other funding sources, a spokesperson said.

The Metropolitan Water Reclamation District of Greater Chicago funds its own green alley program, but its spending is targeted to suburban Cook County. Out of 33 green alley projects undertaken by the district through 2023, just one has been in Chicago, according to a district spokesperson.

‘There’s nothing strategic about it’

The aldermanic menu program, which has funded most of Chicago’s green alleys to date, has been widely criticized as inequitable by design.

A 2017 audit of the menu program by the Chicago inspector general found that
the flat annual sum allocated to each ward “bears no relationship to the actual infrastructure needs of each ward,” resulting in “significant ward-to-ward funding disparities.”

Those disparities help explain why relatively few green alleys have been built in the neighborhoods that need them most, said Joe Ferguson, who served as the city’s inspector general from 2009 to 2021.

The 25th Ward (right), which has the most green alleys in the city, registered 1,105 flood complaints to 311 between 2021 and 2023. The 21st Ward (left) had more than three times as many complaints during the same period but had only two green alleys as of December 2023. Data from City of Chicago, OpenStreetMap. Maps and analysis by Cam Rodriguez

“Menu goes a lot further in a number of the affluent wards because ... they’re geographically smaller, which means they have less residential street surface,” said Ferguson, who is now president of the nonpartisan Civic Federation. “They also have fewer alleys. So it absolutely makes sense as a matter of simple math that we would see more green alleys in those higher-density wards, which tend to be the more affluent wards.”

City leaders rebuffed the 2017 audit and have since defended Chicago’s practice of giving each ward an equal amount of resources.

“We’re very happy with those investments,” Chicago Department of Transportation Commissioner Tom Carney told Illinois Answers about the green alley program last month. “The change that it has [brought] for the residents is
amazing, and it’ll last 40 years. It’s the right way to address flooding in an alley.”

Carney acknowledged that a “need exists citywide” for more green alleys but said allocating an equal number to each ward is how the department can ensure they’re built “all over.”

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Malec-McKenna, the last commissioner of the Chicago Department of the Environment, disagrees.

“There’s nothing strategic about it,” Malec-McKenna said. “In areas where there’s particular flooding — that’s where a lot of our green infrastructure should be absolutely prioritized.”

During the original implementation of the green alley program 20 years ago, the Department of the Environment was responsible for coordinating across city agencies to decide where green alleys and other anti-flooding infrastructure should be built, Malec-McKenna said.

The Chicago Department of Water Management analyzes 311 complaints to decide how to prioritize sewer main replacements, according to a senior department official. But the water department does not coordinate on the placement of green alleys, which is exclusively overseen by the transportation department.

“The DOE was never a massive organization,” Malec-McKenna said. “But what we were able to do was to help bring together the research, look at the best infrastructure, work collaboratively with the departments, help get pilots going, look at the economic impact … and try to integrate it into the infrastructure of the departments.”

Ald. Maria Hadden (49th), who chairs the City Council Committee on Environmental Protection and Energy, described Chicago’s green alley siting process as “a little bit of a shot-in-the-dark implementation strategy.”
“If the goal of the green alley program is to give better alley infrastructure options to each ward, then it’s probably a fine implementation strategy,” Hadden said. “However, if green alleys are supposed to be more of a tool to help with flood mitigation and other water management issues, then I think we’d probably do better in having a different approach in how the locations for those alleys are selected.”

Angela Tovar, Chicago’s chief sustainability officer and commissioner of the newly reconstituted Chicago Department of the Environment, wrote in an emailed statement that the Department of the Environment will “collaborate [with] and advise” other city agencies on flood-related policies as it continues to staff up, and that her team is working with the mayor’s office on “outlining a strategic direction for water policy issues in the city.”

Around the corner from Hillman and his mother’s home on Race Street, many of their neighbors were not as fortunate during last year’s storms.

Steve Richard, who lives on the 5300 block of West Ferdinand Street, had to pay to repair his water heater and replace a refrigerator and washer-dryer system after nearly a foot of sewage water gushed into his basement in July.

The green alley that was built up the street from him caught his attention, he said, noting that his driveway often turns into a pond during periods of heavy rain.

“I would love for my alley here to be replaced like that,” he said.

*Contributing: Cam Rodriguez*