

system at the Jersey City Incinerator Authority's water treatment plants, among other repairs.

Which is where the Permaculture Learning Garden comes in, says the group. According to Elyssa Serrilli, the executive director of Green Collar Futures, permaculture ecosystems help combat "combined sewer overflows," which she describes as a big problem in New Jersey and specifically Jersey City, where the bill for the sewage system overhaul is projected to come in at approximately \$52 million.

"Jersey City was just one of several cities fined last year by the Department of Environmental Protection for leaking sewage into nearby rivers," Serrilli says. "Rain gardens are one of the tools our cities have to capture rainwater and reduce flooding and sewer overflows."

The Permaculture Learning Garden, a joint effort between Green Collar Futures and the Washington Parks Association, promotes a type of urban gardening that provides more than food or beautification of the city. The system of terraces, swales and three-tiered rain garden in Washington Park "slowed and pulled rainwater [from Hurricane Irene] in from adjacent pavement, protecting trees from being uprooted and channeling water into planting beds and away from flooding storm sewers," according to a statement by Green Collar Futures.

The benefits of permaculture gardens extend beyond handling water overflow in times of frequent rain — they also help to keep the sewage system cleaner, filtering out dangerous toxins. As rainwater collects during a storm, it gathers pollutants like car oils and heavy metals that collect on impervious surfaces, as well as lawn pesticides, as it finds its way to city-installed drainage. When the storm is severe enough, the water will then surpass the holding capacity of the sewage system, causing a spillage that releases the untreated water into the surrounding ecosystem. But when the rainwater is re-routed through a garden like the one at Washington Park, a natural filtration results.

As promising as this sounds, proponents of permaculture gardens say many more are needed in Jersey City to make a difference. A **similar initiative along the Puget Sound** calls for 12,000 rain gardens of various size to address the problem. What is proving difficult for the groups like Green Collar Futures is convincing city officials that green solutions can play an important part of the solution in a city as dense — and with as many aging pipes — as Jersey City.

Mayor Healy's administration has implemented a number of green initiatives during his time in office, initiating the Adopt-A-Lot program to clean blighted areas and grow food, a 10-year master plan to address city park repairs, and the re-creation of the city's Environmental Commission, all with an eye to Sustainable Jersey certification and the grants and recognition that come with that distinction.



But Debra Italiano, co-founder of the Jersey City Green Team and the sustainability education advisor to the garden project, doesn't think the city takes community groups like hers seriously enough. Italiano says the upfront cost of green projects has been a key criticism from city officials she's spoken with. But she notes that grants are available; the garden in Washington Park was helped by grants from Hudson County Open Spaces and the Geraldine R. Dodge Foundation. In fact, the city wrote the grant to the Dodge Foundation on the group's behalf, but the Foundation ultimately decided to award the grant to the community group. This arrangement is not uncommon, explains City Spokeswoman Jennifer Morrill. Jersey City often works with local groups to apply for grants, she says, which is typically the way funding is found for parks-related projects. Still, it was the lack of communication between the group and the city that Italiano says could have been improved in order to better promote the project.

Italiano recalls a 15-year-old study by Rutgers University that demonstrated the need for a sewer system overhaul. "Had we taken action sooner, we would have been positioned to be granted money from the EPA to resolve [the problem] versus the much costlier [sewage system overhaul]," she says.

Now the city faces a long, expensive process, but one that Italiano hopes will be helped by the success of the garden.

"This initiative is intended to serve as a demonstration project for other municipal parkscapes needing to remediate and revitalize eroding landscapes using a low-cost natural systems approach," she says. "Also, the rain garden storm water capture and irrigation system has already inspired other members of the JC Parks Coalition and the newly formed JC Environmental Commission to replicate its success throughout the city."

Dan Becht, executive director of the Jersey City Municipal Utilities Authority (JCMUA), acknowledged the promise of green solutions, saying "we're open to any and all suggestions." But he says practical restrictions make rain gardens too difficult to implement on a policy level.

"Rain gardens require a large area like a park where water is routed from runoff from buildings or streets into gardens and are filtered through there," he says. "They require a lot of attention and maintenance. A rain garden is difficult in an urban city with a lot of impervious areas. Without a lot of open green space, it's kind of impractical."

Yet rain gardens have taken hold in some urban areas. According to the Sustainable Cities Collective, cities such as Seattle that have much greater rainfall than Jersey City have already made headway with their own garden initiatives.

Jersey City's Permaculture Learning Garden had its official opening in September during the

Washington Park Association's Centennial Arts and Music Festival. It will serve as a learning center and promotional tool for alternative solutions to the city's water problems, bringing in the city's youth through apprenticeship programs that aim to teach "green" lessons in a hands-on way.



Following the garden's success so far, Italiano says her Jersey City Green Team is working on a rain garden campaign for the spring that aims to install more gardens throughout the city. When the benefits are seen on a larger scale — and when groups like the Dodge Foundation, which has expressed an interest in continuing to provide grants for the cause, show support — then perhaps official policy may be changed, Italiano says.

Morrill adds that despite the MUA's reservations, the city's Environmental Commission has already recommended the use of rain gardens to help mitigate some of the water overflow problems. How the city weighs the MUA's recommendations versus their Environmental Commission remains to be seen.

She points to Camden, where a similar nonprofit group, the Center for Environmental Transformation (CET), is working alongside the city and Rutgers University to shape the Camden Municipal Utilities Authority's implementation of green solutions. Given some space by the city, CET started a nursery to grow the native plants necessary for rain gardens.

Italiano hopes a similar initiative could begin in Jersey City, leading to more permaculture gardens — and the natural filtration and flood mitigation that will result.

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