The Day

## Imminent Horizons

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# Adapting to flooding in southeastern Connecticut

Beth Acton stands in the rain garden at her home at 11 River Road in East Lyme on Thursday, Dec. 18, 2025. Her driveway and road used to flood, but after the rain garden was installed through a grant, her flooding problem was solved. (Dana Jensen/The Day).

Water from River Road in East Lyme flows into a depressed, pebbled area of this rain garden as a way to direct it from the pavement into the garden, where the soil and plants absorb it on Thursday, Dec. 19, 2025. Homeowner Beth Acton welcomed the free rain garden, designed and planted by experts, to solve the flooding problem in front of her driveway. (Dana Jensen/The Day).

By Theresa Sullivan Barger, Special to The Day

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Beth Acton's driveway and roadway used to flood so much that she had to slosh through puddles to get to the mailbox at the end of her driveway in East Lyme.

The constant flooding killed the decades-old evergreens planted as a border along the road, making the problem worse when she removed them.

When she called the town engineer, she learned about a program to design and install rain gardens to combat flooding. Rain gardens are small gardens built with depressions that collect, store and filter stormwater runoff. Designed with a mix of soils to absorb water, they are planted with a collection of native shrubs, perennial flowers and grasses that thrive in moist soil.

She wondered if having a rain garden would require a lot of maintenance.

“It’s no work at all,” she said. “The only work for me is mulching and removing leaves.”

And it was free, thanks to a grant from the **Eastern Connecticut Conservation District**.

The water from the road now flows into the rain garden of native plants, which need neither watering nor fertilizing. The “ice rink” in front of her mailbox is gone. And she doesn’t have to worry about walking on an icy driveway to pick up her mail.

”I was glad to be able to have this wonderful gift because I didn’t know what the solution was,” Acton said. “I did this to solve a problem. It solved the problem all right.”

Anyone who lives or works in southeastern Connecticut knows firsthand that the flooding of roads, parking lots, businesses and neighborhoods has become a growing problem — and not just when a hurricane or nor’easter passes through.

For more than a decade, municipalities, regional organizations, UConn scientists and engineers, and the state Department of Energy and Environmental Protection (DEEP) have been working on a multi-pronged effort to adapt to flooding.

Today’s warmer atmosphere can hold more moisture. That extra water vapor means storms can drop more rain than in the past, which is why Connecticut is experiencing more frequent, rapid rainfall events.

Increased development adds to the problem. The reduction in ‘pervious’ or ‘porous’ surfaces — forests, gardens, parks and lawns — that absorb and filter precipitation, and the increase in impervious surfaces—parking lots, roads, driveways and rooftops—means there is less ground to absorb rainfall, said **John Truscinski**, director of resilience planning for the **Connecticut Institute for Resilience & Climate Adaptation** (CIRCA), which operates from UConn’s Avery Point campus.

“We’ve always had to deal with flooding, occasional extreme rainfall or a tidal storm surge,” Truscinski said.

Climate change is impacting those hazards in a couple of ways: the global sea level is rising in the Northeast much faster than across the world, he said. One of CIRCA’s earliest charges was to look at weather data in Long Island Sound, including one collection point in New London dating

back to 1938. Based on CIRCA's analysis of data from global climate models, in 2018 it recommended that municipalities plan for up to 20 inches of sea level rise by 2050, he said.

Rising sea levels change the frequency and depth of flooding along the coast of Connecticut, Truscinski said, "making the more frequent storms more damaging."

In addition, every town in Connecticut has to deal with rainfall flooding, he said. To adapt to these changing conditions, both engineered and nature-based solutions have been used and are planned. Much of the funding for these measures comes in the form of grants from DEEP and nonprofits such as **The Nature Conservancy**.

**Nature-based solutions**

Nature-based solutions use natural features to absorb rainfall and stormwater runoff. These include riparian (plant-based) buffers, **rain gardens**, green roofs (where plants collect rainfall and reduce runoff), **bioswales**, which are deep ditches with layers of peastone and a soil-sand mixture to collect stormwater and rainfall, topped by soil and plants, and drainage or **water quality swales**, which are shallow, broad, vegetated channels designed to collect, store and filter runoff to remove pollutants.

In order to significantly reduce flooding, about 20% to 30% of a watershed needs to have a combination of nature-based solutions, Truscinski said. Reaching that level of participation, he said, requires coordination across a large collection of property owners, building owners and other stakeholders like municipalities.

He praised New London's decision to create a municipal stormwater utility to collect a stormwater user fee based on the amount of impervious surface a property has. That structure provides revenue to maintain the stormwater system while offering an incentive to reduce the impervious surfaces that contribute to stormwater runoff, he said.

Sixty-five percent of New London has impervious surface, said **Joseph Lanzafame**, the city's public utilities director. Locations such as Bank Street and Broad Street used to get flooded every time it rained, he said. Now, "the flooding is very much under control. A lot of our problem spots, it just doesn't happen anymore under normal conditions."

It still floods when there's a high moon tide and heavy rainfall in a short amount of time, Lanzafame said, but "in New London, we've seen a huge reduction in overall flooding."

How did New London do it?

Part of it involved a public education campaign, showing residents and business owners that if they have a flooding problem in their neighborhood or on their site, they could be part of the

solution, he said. The newly opened New London Community Center installed pervious pavement that can handle the weight of vehicles while still absorbing rainfall.

City officials changed the regulations so that when anyone redevelops or builds something new, Lanzafame said, they're required to meet new standards for controlling the flow of water off their property. The standards require that developers build a unit that retains or detains water so that water is held and released slowly and does not increase the amount of runoff from existing conditions.

**Riparian buffers**

Another relatively inexpensive and effective natural solution is riparian buffers, which include the soil and vegetation along a watercourse such as a stream, river or lake, said **Juliana Barrett**, extension educator, emerita with Connecticut Sea Grant, UConn Extension Department. Riparian buffers are important because they can filter stormwater runoff before any pollutants flow into the water, she said.

"When a river is raging with flood waters, a riparian buffer along the length of that river is going to help mitigate that flooding, slow the floodwaters to some degree, and help absorb some of the flood waters as opposed to lawn grass," she said. "It's not going to stop flooding, but it can mitigate. It's like putting up little barriers. ... Every obstacle it hits is going to slow the water down, and help prevent erosion by those flood waters."

It's important to have vegetation to shade the water, "particularly with warming air temperatures," she added. Aquatic life, including trout, can't thrive if the water gets too warm.

More than a decade ago, she said, New York City was looking at water filtration systems that would have cost millions of dollars. With New York's water coming from the Catskill Mountains, Barrett said, officials worked with farmers to install **riparian buffers** — and ended up with good quality drinking water for much less money.

**Engineered or "hybrid/grey" solutions**

Both the Town and the City of Groton have been working on resiliency plans. The Town of Groton established "**Climate Ready Groton**" and created a sustainability and resilience manager position about three years ago.

Sabit Nasir, the town's second person in that post, and David Prescott, the town's land use planner and floodplain manager, work with residents and businesses toward collective solutions.

The town received a DEEP grant to create the resiliency plan, and Christopher Field, director of the Office of Planning and Resilience at DEEP, said he hopes Groton seeks an additional grant from DEEP so "we can help support them in making some of these projects a reality."

In addition to asking residents and businesses to add rain barrels to collect runoff from their roofs, Groton officials have identified flood-prone areas in town and are encouraging property owners to replace impervious surfaces with pervious pavers, Nasir said.

Nasir and Prescott joined other officials on a Dec. 17 tour to assess multiple town-owned properties, such as the public library and community center, to identify visible locations where the town could potentially replace impervious pavement with permeable pavers. This would serve as a demonstration site while also reducing runoff.

Groton is also retrofitting culverts by widening them. Culverts, a series of pipes underneath roads that collect water from a stream or other watercourse, were designed decades ago when there were fewer intense, heavy rainstorms and less development, Prescott said. Groton is increasing the culvert system's capacity as part of routine maintenance and upgrades.

Meanwhile, in the City of Groton, Cierra Patrick, economic development manager, said officials identified the **Five Corners** district that abuts the Electric Boat property as an area that needs flooding solutions. The city partnered with The Nature Conservancy, which awarded a grant to conduct a neighborhood stormwater assessment and tree-planting project. The city hired an engineering firm and held 10 community workshops to hear from neighborhood stakeholders about the flooding problems they're experiencing, Patrick said.

In August, the city used $3,000 in grant funds to purchase 10-gallon native plants, such as blueberry shrubs, dogwood trees and coneflowers, that they gave to people to plant to absorb stormwater.

While working on the plan that included adding pipes along flood-prone roads, with expert guidance from The Nature Conservancy, the city and volunteers planted 50 trees on private property within the focus area. Trees' deep roots absorb stormwater, Patrick said. While educating the community about the importance of adding more trees, they planted the trees strategically, she said. The trees' shade helps reduce the urban heat island effect.

The Eastern Connecticut Conservation District received a federal Clean Water Act grant administered by DEEP and collaborated with the City of Groton to remove pavement and a sidewalk and replace them with porous concrete panels.

Multiple municipalities said they're asking residents and businesses that experience flooding to clear leaves from storm drains, use rain barrels and install rain gardens.

"We are all stewards of this space in our communities," Patrick said. "There are ways for everybody to be able to contribute."