AS MORE ROADS BECOME RIVERS, COMMUNITIES SEARCH FOR SOLUTIONS

By Judy Benson

Dodging the effects of rising seas has become a routine habit for Milford resident Mary McCutcheon.

"Now, any time there's a higher-than-normal tide, there's road flooding," she said.

She sees it near her home on Beachland Avenue, where she's lived for the past dozen years. On some days, even when that street is passable, floodwaters can be covering the only road to the Connecticut Audubon Center's Coastal Center at Milford Point, where she volunteers.

"We'll get a call telling us not to come in," she said. "But we have to watch. The flooding is becoming much more frequent."

Less than a mile from McCutcheon's house, Nancy Rogers copes with the effects of encroaching waters with vigilance and a snow shovel. Though snow was scarce this winter, she often used the shovel to push layers of sand off her driveway that had been deposited with high tides that swept over the beach in front of her house, across her property and onto Field Court, the main access road. This winter, one of her neighbors didn't move their car in time, and it ended up under water. Rogers pointed to a dark line on that neighbor's house marking the height of the recent floodwaters – about halfway up the first floor.

"If you live here, you have to be on guard all the time," said Rogers, who elevated her home after damage from Superstorm Sandy in 2012. "Almost any time there's a rainstorm it floods. I'm tired of shoveling sand all the time, so I'm thinking of putting up a concrete wall. I think that'll help."

In most of the 24 towns along the Connecticut shoreline, there is at least one neighborhood where roads are predictably becoming impassible at higher-than-normal high tides – even at an average high tide, in some places. Of the multiple ways that the warming air, seas and wetter world coming with climate change are already affecting Connecticut, the increasing frequency of coastal road flooding is the most immediate and tangible impact communities are being forced to confront in the present moment.

"In looking at the impacts of climate change along the Connecticut coast, road flooding is probably the issue at the top of the list," said Juliana Barrett, coastal habitat specialist with Connecticut Sea Grant. "It's affecting every community, and it's something that's going to get far worse."

According to the U.S. Federal Agency Sea Level Rise and Coastal Hazard Task Force, the North Atlantic region was being affected by flooding 3.4 to six days per year from 2000 to 2015. The trend has been continuing upward since then, and is on track to increase to 45 to 140 days per year by 2050 – about four to 11 days every month. By that time, sea level will have risen another 20 inches in Connecticut, with no letup seen through the end of the century. This means many of the low-lying roads near beaches and salt marshes along the coast could be under water daily, turning some neighborhoods into islands.

Town and state officials in charge of those vulnerable roads are left to face the difficult and expensive long-term challenge of figuring out how to deal with the increasing road erosion, cleanup and repair costs, access problems for ambulances and police, and tough decisions about which flooded roads to elevate, abandon or discontinue. All three of those solutions present a suite of complex challenges of their own.

"Climate change is a global problem with local impacts, and it's fallen to state and local governments to do the job of dealing with it," said Mark Boyer, University of Connecticut geography professor. He has been doing interviews and reading municipal plans in nearly all of Connecticut's 169 towns as part of research into climate adaptation. He's found a wide spectrum of approaches, from towns that barely acknowledge the issue to those actively trying to figure out what to do.

"It ends up being a political issue and not a scientific issue of how to manage this stuff," he said. "The real problem is

A backhoe operated by a Guilford town road crew worker moves rocks to rebuild the seawall on Falcon Road in April. The road had been closed due to storm damage since last fall. Photo: Judy Benson

the built environment. How are you going to get past the built environment and the entrenched political interests and potentially declining home values (due to frequent flooding) to make some rational decisions?"

Big engineering solutions – tide gates, pumping systems, levees, sea walls, lifting roads onto causeways – might work in some places, but at a high cost. And they won't work everywhere – especially if ecologically crucial salt marshes are to be preserved.

"The bottom line is you've got to move people away from the coast," Boyer said. "Let the beaches and marshes migrate inland and reestablish the ecosystem there. But the short-term self-interest is defeating the long-term interests."

Some communities are starting to tackle the problem – with mixed results. One example is in the Fenwick Borough of Old Saybrook, where a section of Sequassen Avenue was elevated about 3½ feet by the town in 2015 at a cost of $160,000. The project was needed to preserve access to about half of the 43 homes in the borough – many of them important contributors to the town's tax base. But rather than solving the problem for the long term, all it did was buy some time.

"The town doesn't want to see us become totally isolated out here," said William Webster Jr., chairman of the borough's Roads Committee and a full-time resident for the past 10 years. He's been coming to his family home there since childhood, he said, and has noticed a steep acceleration in the frequency of road flooding in the last five years. The work done on Sequassen Avenue, he said, helped only temporarily – flooding cut off access to his house several times this winter – and new areas of flooding on other roads are starting to occur.

"In 15 to 20 years it will be unbelievable," he said. "That's the scary part – what the next generation is going to see. So you've got to start dealing with it."

Some 18 miles to the west in Guilford, Town Engineer Janice Placiak said her town has compiled a list of nine coastal roads with flooding problems. In two cases, on Chimney Corners Road and Neck Road, the flooding has become severe.

"There are about 30 homes there right now that have challenges for access on a frequent basis," she said. "But it's hard to identify the right solution."

She recalled that in 2003, she was involved in developing a

A car approaches a flooded section of Old Quarry Road in Guilford during a nor'easter in October 2018. The road had been raised about two feet within the last three years, but continues to flood during storm events. Photo: Sidney Gale

Frequent flooding on Milford Point Road, the main access to the Connecticut Audubon Center's Coastal Center at Milford Point, can cause closures of the center. Photo: Judy Benson

Nancy Rogers uses a snow shovel to push sand off her driveway on Field Court in Milford. The sand is often left after high tides that flood the road. Photo: Judy Benson

A pickup truck attempts to drive across the flooded West River causeway on Route 146 in Guilford during a nor'easter in March 2018. Photo: Sidney Gale

Floodwaters cover Daniel Avenue in the Indian Cove section of Guilford in October 2018, despite repairs made after Superstorm Sandy washed out a portion of the road. Photo: Sidney Gale

Sequassen Road in the Fenwick section of Old Saybrook is covered with floodwaters after a storm in November 2018. Photo: William Webster Jr.

Guilford resident Sidney Gale, left, talks with state Department of Transportation Engineer Theodore Nezames about plans to replace a bridge on Route 146 during a public meeting last March. Photo: Judy Benson

A bridge on Route 146 in Guilford has undersized, deteriorated culverts on either side that channel water between Long Island Sound and a salt marsh. The bridge is slated for replacement by the state DOT. Photo: Judy Benson

'In 15 to 20 years it will be unbelievable. That's the scary part – what the next generation is going to see. So you've got to start dealing with it.' – William Webster Jr.

transportation plan for the town.

"Then, road flooding wasn't even a topic of concern," she said. "But something's changed since then. It's not just the storms and sea level rise, but it's the catch basins and the drainage systems that can't handle the water."

Route 146, a state road between Guilford and Branford that crosses several marshes along the way, in many ways embodies the many perplexing problems posed by the juxtaposition of rising seas and pavement. At a March meeting, 120 residents turned out to learn about the state Department of Transportation's plan for a new $14 million bridge over a marsh that would replace undersized and dangerously deteriorating culverts channeling water between the Long Island Sound and a salt marsh. Among the many opinions expressed about the merits of the plan, several speakers urged the DOT engineers not to look at the problems of this one bridge in isolation.

"I've been photographing flooding on this road for 10 years, and it's been steadily increasing," said Sidney Gale. A retired businessman, Gale has been speaking and writing articles about the need to confront the challenges of climate change since 2004, when he attended a conference and had a kind of epiphany about the reality of what's ahead.

"It's critical that we not just look at this project, but the whole of Route 146," he told the DOT engineers. "There are seven other spots on this road that flood with frequency. We'd be better off doing a comprehensive plan."

Placiak said the town has such a plan in the works in cooperation with Branford. It will be shared with the DOT, which would be required to take it into consideration before doing any work on Route 146.

Carl Ballestracci, former first selectman of the town, warned that fixing the bridge without considering the bigger picture could be a waste of time and money and only make flooding elsewhere on that road worse.

"The DOT needs to realize that building a new bridge is only one very small piece of the problem," he said. "One hundred yards north there are culverts that need to be increased. You've got to realize that sea level is rising. Every month at the railroad underpass, Route 146 is under water. You could just be making that problem worse."

The meeting lasted more than two hours. At the end, engineer Theodore Nezames, manager of bridges for the DOT's Bureau of Engineering and Construction, said he would take the comments about the need for a solution to all the flooding problems of Route 146 into consideration as the bridge plans are revised.

"I'll take this message back to our planning folks," he said. "But we have the whole coast that's got the same issues."

Robert Bell, director of the Bureau of Policy and Planning at the DOT, said the agency is starting to factor future climate change impacts into its projects. As part of that, he and others are working with David Kozak at the state Department of Energy and Environmental Protection. Kozak and the UConn Center for Land Use Education and Research (CLEAR) are leading the creation of a digital road flooding and marsh migration viewer that promises to be a useful tool for future planning. Launched this spring, the viewer can be found at: https://cteco.uconn.edu/viewer/index.html?viewer=slamm.

"We just recently got the information we need to weave the sea level rise projections into our analyses," Bell said.

For Barrett, who's been working with CLEAR and UConn Extension to organize the Climate Adaptation Academy workshops series for state and municipal officials since 2010, the road flooding issue presents both a challenge and an opportunity to engage the public about a real-time climate change issue. The digital viewer, she hopes, will be used not only by engineers and planners, but also by members of the public who want to understand what the future holds for their neighborhoods.

"It will give us a more comprehensive view of road flooding, so people can be looking at it in a much more strategic way," she said. "What will it mean to elevate one section of a road? Will that just create an island somewhere else?

"You have to start the conversation now with people, and let them know how they can be part of the process," she added. "Now is the time for communities to start figuring out the process they're going to use to prioritize road flooding problems, while they're just dealing with a handful of roads that flood. Down the road it could be 10 times as many."

A portion of this article was excerpted from, "Flooding and Eroding Coastal Roads: A Borough's Fight to Keep Roadways Safe," written by Olivia Thompson in 2018 and based on legal research she conducted as a Rhode Island Sea Grant Legal Fellow at the Roger Williams University School of Law. Her research was published in "Responding to Nuisance Flooding in Coastal Highways: Options for Municipalities," a Climate Adaptation Academy fact sheet available at: https://seagrant.uconn.edu/wp-content/uploads/sites/1985/2019/01/CoastalHighwaysFS5_FINAL.pdf