Building Resilience

How SEMCOG Is Preparing Southeast Michigan for a Wetter, Less Predictable Future

BY SUSAN THWING

Southeast Michigan is no stranger to water. With the Detroit River at its edge and the Great Lakes shaping the region's identity, water has always been a defining asset. But over the last decade, it has also become one of its biggest challenges. Three major federal disaster declarations regarding flooding in the past five years underscore an unmistakable trend: flooding is increasing in both frequency and intensity, and the infrastructure built decades ago was never designed to handle the rain events communities are now experiencing.

"Flooding is really at the core of the issue," said Katherine Grantham, Planner III in SEMCOG's (Southeast Michigan Council on Government) Environment & Infrastructure department. "We're seeing more frequent, higher-intensity rain events, and we have an aging infrastructure system that just wasn't built for this reality."



Katherine Grantham

Communities across Southeast Michigan are feeling the impact firsthand: flooded basements, impassable roads, compromised infrastructure, business disruptions, and declining water quality from increased runoff. While climate change often becomes a politically charged phrase, Grantham said the lived experience is now impossible to ignore.

"When you go to communities and simply ask, 'Have you experienced flooding?' the answer is yes across the board," she said. "Whether or not people want to attribute it to climate change, everyone is dealing with the consequences."

A New Regional Flooding and Resilience Plan

SEMCOG's most significant current initiative is the development of a comprehensive Flooding and Resilience Plan for Southeast Michigan, scheduled for release in March 2027. The work is supported by funding from the Federal Highway Administration's PROTECT Program, which helps metropolitan planning organizations create long-term resilience strategies, as well as the Michigan Department of Transportation and the Erb Family Foundation.

"The plan will outline projects that can be realistically implemented in both the short term—five to 10 years—and also looking 25 to 50 years into the future," Grantham explained. "These could include transportation-related storage solutions like tunnels or tanks, updates to emergency response plans, and large-scale green infrastructure projects."

Large-scale is the key. SEMCOG is specifically identifying nature-based or green infrastructure areas of 10 acres or more that could store stormwater, manage runoff, and reduce downstream flooding.

"It's about designing spaces throughout Southeast Michigan that can hold water back so we're not overburdening the stormwater collection systems, downstream communities or critical transportation corridors," she said.

Working With, Not Against, Nature

Grantham emphasized that green infrastructure has emerged as a top strategy, not because it's trendy, but because it is practical, cost-effective, and multifunctional.

"We can't build our way out of this problem," she said. "The amount of gray infrastructure needed would be immense. So, communities are looking at how green and gray systems can work together."

Nature-based solutions, such as expanded wetlands, restored floodplains, large-scale green infrastructure solutions, and naturalized retention areas, create multiple public benefits beyond flood mitigation. They can improve water quality, increase property values, enhance neighborhood aesthetics, and create new recreational opportunities.

"Communities really like that nature-based solutions don't just solve a single problem," Grantham said. "When you implement a green approach, you're also improving quality of life."

Data at the Heart of Decision-Making

As a regional planning organization, SEMCOG's strength lies in its data-driven approach. For this initiative, Grantham's team is developing a detailed vulnerability assessment for the entire region: one of the foundational steps in any resilience planning process.

"We're inventorying culverts and looking at the transportation network to see where flooding is already occurring and where it's likely to happen in the future," she said. "Then we look at how this affects access to core services such as hospitals, employment centers, schools."



Flooding in Clinton Township.


A Flooding Task Force meeting at SEMCOG.

SEMCOG is also performing a sophisticated analysis of nature-based opportunities. Using land cover, land use, and park system data—alongside modeling collaborations with the Great Lakes Water Authority (GLWA) and U.S. Army Corps of Engineers—the team is identifying places where green infrastructure can have the strongest regional impact.

Two publicly accessible online tools help communities act on this information:

- **SEMCOG's Flood Risk Tool**, which helps municipalities analyze flooding vulnerabilities.
- **The Nature-Based Solutions Opportunities Dashboard**, which reveals where large-scale green infrastructure could be most effective.

"We're not just analyzing the data we're sharing it back with communities in a usable way," Grantham said. "And we're ground-truthing it. Talking with communities, validating what we're seeing, and updating our tools based on real feedback."

Collaboration as a Cornerstone

Because water ignores municipal boundaries, collaboration is not optional. It is essential.

"Water doesn't stop at a city line," Grantham said. "Building resilience requires everyone working together."

SEMCOG convenes a regional flooding task force that brings together local planners, engineers, emergency managers, utilities, nonprofits, academic partners, and state agencies. The group meets regularly to share needs, challenges, and emerging research.

"We want to know what communities need from us," Grantham emphasized. "Policy guidance? Engineering standards? Best practices for master planning? We're shaping the resilience plan around these conversations."

SEMCOG also participates in a collaborative work group with GLWA, the Army Corps, and university researchers to coordinate hydrological modeling efforts.

"We don't want to duplicate work because that's inefficient and costly," she said. "This group ensures that when someone develops new data or a new model, we're all aligned and can support each other instead of repeating research."

Preparing Engineers and Planners for the Future

For engineers, planners, and designers Grantham's message is clear: collaboration and innovation must be central to future infrastructure solutions.

"We can't stay in our silos," she said. "Engineering teams need to be talking to planning teams, and vice versa. Solutions must benefit everyone across departments."

She also emphasized the importance of innovation and creativity. "It's going to be really hard to build our way out of this. We have aging systems and limited budgets," she said. "So we need to think differently. We need to look at what other regions or countries are doing, and adapt those ideas for Southeast Michigan."

Another key step is taking inventory of local assets: where the critical systems are, where hazards occur, and where investments can make the biggest impact. "That's how communities get the most bang for their buck," Grantham said, adding that one of the biggest hurdles for infrastructure projects is funding. "Unlike local rate structures for drinking water and wastewater, most local agencies do not have a dedicated funding source for stormwater infrastructure improvements. While recent court cases have provided some cover for communities looking to implement stormwater utilities, SEMCOG and other stakeholders are working to pass state legislation that clearly outlines the legal stormwater utility structure."

A Regional Path Forward

Ultimately, SEMCOG's work is about building a stronger, more resilient, more informed Southeast Michigan—one where communities understand their vulnerabilities and have actionable strategies to address them.

"If I could leave readers with one takeaway, it's that resilience is achievable," Grantham said. "But it will take time, collaboration, and a willingness to do things differently. Water will always be central to who we are as a region. Our task now is to ensure that we're prepared for what the future brings."



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