DHS Science and Technology Directorate
Charlotte-Mecklenburg Storm Water Services Partnering to Plan for Flood Risk

Risk Is Not "One-Size-Fits-All"

Throughout the United States, local communities are continuously seeking out ways to become more resilient and sustainable. When it comes to the unique hazards and consequences of flooding, specific measures need to be taken in order to provide accurate risk assessment and ensure proactive measures are in place. This is why the Charlotte-Mecklenburg Storm Water Services (SWS) was created.

The Charlotte-Mecklenburg SWS is a joint municipal/county storm water utility that includes Charlotte, the surrounding towns of Davidson, Cornelius, Huntersville, Matthews, Mint Hill and Pineville and Mecklenburg County. The role of SWS is to provide year-round management of runoff from rainfall, reduce flooding, restore floodplains and protect the water quality of surface waters county-wide.

There are still shortcomings and needs that must be addressed in the SWS as it exists today. That is where the Department of Homeland Security (DHS) Science and Technology Directorate (S&T) Flood Apex Program is ready to step in.

Filling the Gaps

By partnering with the DHS S&T Flood Apex Program, Charlotte-Mecklenburg SWS seeks to change the nature of how it addresses local flood risk. Although the SWS has an existing flood Risk Assessment and Risk Reduction (RARR) Plan, there remain challenges that must be addressed:

- Expensive U.S. Geological Survey gauges that are not practical to install everywhere data is needed;
- Platforms and features of flood risk tools requiring substantial enhancement;
- Risk management concepts that are not readily transferrable to other communities; and
- The lack of data connectivity in real time for seamless event management and risk communication.

Through the RARR tool, SWS can gather flood risk data to help identify, communicate and reduce flood risk at the individual property level in Charlotte-Mecklenburg floodplains.

Improving Sensors and Risk Tools

In order to deliver improvements in both local flood sensors and flood risk tools, S&T Flood Apex and Charlotte-Mecklenburg SWS have developed a three-year project plan.

In Year 1, Flood Apex and SWS plan to deliver a national outreach report, a flood management risk tool needs assessment, enhancements for the RARR tool base and a flood sensor deployment plan. In addition, limited field deployment for flood sensors will be completed. Years 2 and 3 of the plan will be defined by the integration and evaluation of flood sensors, as well as tool and guidebook upgrades for flood risk assessment.

First responders attending to a flood-related incident in Charlotte, NC (Photo Credit: Charlotte-Mecklenburg Water Services [Archive photo])

Key factors in improving flood sensors and flood risk tools are: reducing flood fatalities through improved warning times and flood boundaries; reducing property and infrastructure damage over time; improving tools and decision support products to better manage flood data; and enhancing community resiliency with intuitive and informative indicators, tools and metrics.

The plan will be informed and supported by existing S&T Flood Apex projects, with the aim of maximizing return on investment, reducing costs, and accelerating the transition and adoption of innovations. These projects will not just for flood risk stakeholders in the Charlotte-Mecklenburg area, but throughout the first responder and emergency management community.

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