

Flood Vulnerability at CFPUA: Pump Stations & Tracking

Cape Fear Public Utility Authority is no stranger to extreme weather events. Due to a changing climate, coastal North Carolina is anticipating even more severe weather, continued sea level rise, and increases in temperatures, precipitation totals, and flooding events. As part of our efforts to increase organizational resiliency, CFPUA staff regularly assess potential areas of vulnerability and plan for improvements.

One particularly vulnerable class of assets, CFPUA’s sewer pump stations, has already experienced impacts from flooding. Pump stations are typically located in the lowest lying areas of our system, near waterways and inside floodplains. Flooding in or near a pump station can result in power outages, sewer overflows, and costly equipment damage. As sea level rises and precipitation events intensify, CFPUA’s approximately 150 pump stations are at an increased risk of flooding.

To begin collecting data on flood events and to better project future impacts from climate change, a group of interdepartmental staff compiled data on 19 “at-risk” pump stations identified by the Wastewater Collections division. Of these, 18 have a history of flooding at or near the station. A closer study of individual flood events revealed that half of the stations have experienced stormwater-related flooding, while half were impacted by flooding related to storm surge. Determining and recording the causes of flooding will help staff more quickly identify possible mitigation solutions. For security purposes, the pump station data is housed in internal-facing platforms, including our asset tracking program and an ArcGIS web-mapping tool.

Staff intend to collect data on all of CFPUA’s pump stations over time, as well as additional assets vulnerable to flooding. As we continue collecting this data, we will include information on things like real-time flood events and elevations of other vulnerable assets. As we build our knowledge base, we will work with staff across the organization to ensure we collect relevant data and find new ways to pair this data with the capital improvement process, opportunities for grant funding, and regional partnerships for potential adaptation projects. Capturing this data in the web-mapping tool will allow us to create custom solutions for each asset.



Raising Electrical Control Panels

