Assessing Debris and Rebuilding Homes

Infrastructure Support
Technical Assistance
We deployed a debris estimator tool field test in eight New Jersey counties to understand the magnitude of recovery efforts. As part of this initiative, a joint venture with URS, an application was developed based on geospatial technology incorporating all sources into a scalable and iterative tool to produce debris quantity estimates.

Debris Monitoring
In the weeks immediately following Superstorm Sandy, we monitored up to 200 trucks per day transporting 58,000 tons of debris for the New Jersey Department of Transportation (NJDOT).

Advisory Base Flood Elevations
We compiled data to help communities rebuild their homes more resiliently, either beyond wave-risk areas or elevated above them. An online application allowed users to enter an address and mine all the relevant data they needed.

Substantial Damage Estimates
Our structure assessments helped communities determine damage estimates, and whether buildings were “substantially damaged” (damage that exceeded 50 percent of the structure’s value).

Rapid Site Assessments
For the New York City Housing Authority (NYCHA) we assessed post-hurricane conditions for 19 multi-family high-rise buildings in Lower Manhattan for storm-related disruptions to heating, power, sanitary, and water systems. The site assessment reports were quickly followed by detailed site investigations and engineering required for due diligence reports indicating physical conditions, recommendations, options, feasibility, construction budget cost estimates, and cost-benefit analysis.

Expediting Pre-Construction for New York City Build it Back
We are supporting the New York City Economic Development Corporation, in partnership with the mayor’s office of housing recovery operations, with pre-construction services related to the NYC Build it Back program, a Community Development Block Grant Disaster Recovery-funded city program to assist homeowners, landlords, and tenants in the five boroughs.

With more than 20,000 applications, we developed and refined a process to support accurate inspections and cost estimates, as well as a thorough environmental review that complies with the acts and regulations required for federally funded projects. We are leveraging cloud- and GIS-based data management to streamline inspection, cost estimating, and environmental reviews, and facilitating the processing of large volumes of data collected.

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Response, Recovery, and Mitigation

New Jersey’s Community Development Block Grant—Disaster Recovery Programs

To date, we have performed 144 environmental field assessments in eight New Jersey counties, including environmental and historic preservation reviews in compliance with regulatory requirements to clear properties for funding under HUD and FEMA programs.

144
FIELD ASSESSMENTS COMPLETED within 8 New Jersey counties

Parting the Waters
Program Management for Waterway Debris Removal

The New Jersey Department of Environmental Protection (NJDEP) and Governor Chris Christie emphasized the importance of having the beaches and waterways cleared, as both are major contributors to the state’s economy. The 127 miles of coastal shoreline, 211 state navigation channels, and numerous smaller waterways were all part of the NJDEP’s prioritized sites. We managed the removal of floating and submerged debris, including 194 vessels and vehicles, four homes, 6,019 submerged targets, over 100,000 cubic yards of debris, and over 360,000 cubic yards of sediment. After eight months of work, the Christie administration announced the program’s successful completion.

MANAGED DEBRIS REMOVAL

- 4 homes
- 194 vessels & vehicles
- 6,019 submerged targets
- 100,000 cubic yards of debris
- 360,000 cubic yards of sediment

Blue Acres Demolition Program
Site/civil and environmental services for the pre-construction demolition of homes in the Blue Acres program. New Jersey expects 1,800 homes to be involved through 2016.

Reconstruction, Rehabilitation, Elevation, and Mitigation (RREM)-Qualified Homebuilders
Site/civil, structural, surveying, and architectural services for nine home builders participating in the RREM program. Homes are being reconstructed and raised on an accelerated schedule.

Remote Sensing Services for Atlantic Seaboard Mapping
Prime contractor for the collection and processing of topobathymetric LiDAR and digital camera imagery data under the National Oceanic Atmospheric Administration’s (NOAA) coastal and geospatial services contract. The data will be used by NOAA as part of its National Geodetic Survey Remote Sensing Division’s Coastal Mapping program to enable accurate and consistent measurement of the national shoreline following Sandy’s landfall. Partnering with Quantum Spatial and Woolpert, we will acquire and process topobathymetric LiDAR and imagery products from Myrtle Beach, South Carolina, to Long Island, New York.

Improving Infrastructure

Flood Hardening of PATH Rail System Signal Room
Structural engineering design services for development of a flood protection system at the subterranean Cassion 3 relay room. We worked closely with the client to perform midnight site visits, document existing conditions, establish design criteria, and develop the mitigation plan.

PATH Hoboken Station Elevator Repair
Structural, civil, mechanical, electrical, and plumbing engineering design services to repair and develop flood protection plans for an elevator that gives ADA access from street level to the train platform level, and developed a flood barrier plan to mitigate water intrusion from the street level. We repaired below-grade elevator shaft walls to improve their watertight integrity.

PATH Hoboken Station Portal Flood Resilience
Structural engineering design services for development of a flood protection system at the train tunnel entrances. The design includes the installation of five-foot-tall flood barriers at the interface between the station and the train tunnel portals.
New York City Transit Flood Mitigation/Resilience
We are assisting the team designing near- and long-term solutions to mitigate flooding for six NYCT stations in flood-prone areas for Category 2 Hurricane storm surges, including measures to prevent future disruptions to subway operations.

Cross Bay Bridge and Marine Parkway Bridge Repairs
In Jamaica Bay, New York, we designed a gabion retaining wall and mattress apron to stabilize and protect the eroded embankment at Cross Bay Bridge. We also regraded the riprap at the Marine Parkway-Gil Hodges Memorial Bridge within the right-of-way to repair storm damage.

Preparing for Resilience
Rebuild by Design
We gave mitigation consulting support to the team, led by HR&A Advisors, Inc./Cooper, Robertson & Partners, that developed one of ten projects chosen to move to the final stage of this design competition. An initiative of the president’s Hurricane Sandy Rebuilding Task Force, Rebuild by Design is a coastal commercial resiliency project that introduces business and building-level resiliency interventions and corridor and neighborhood-wide interventions, and accompanying strategies for implementation.

Federal Transit Administration (FTA) Resiliency Grants Tool
We assisted the team developing the FTA’s cost-benefit analysis tool, as well as trained staff on the tool’s use. Compliance with the tool is one of seven criteria for resiliency grant applications.

Southwest Brooklyn Industrial Development Corporation (SBIDC) Small Business Assistance
SBIDC brought our engineering expertise to Southwest Brooklyn to give small businesses access to the tools needed to plan and prepare for storms.

A&N Electric Cooperative Sandy Reimbursements
We are supporting a rural electric cooperative on the eastern shore of Virginia with its Superstorm Sandy reimbursements for public assistance and hazard mitigation grant funding. The co-op incurred over one million dollars in damages across the two states it serves. With limited in-house experience or capabilities to manage the paperwork required to submit reimbursement requests to FEMA, A&N contracted us to provide comprehensive services to manage and implement all aspects of FEMA-required documentation and programatically required processes.

Oakwood Beach Flood Attenuation Feasibility Study
We studied a combination of natural infrastructure and rock revetment built either on government-owned properties or on properties that could be acquired to protect Oakwood Beach, New York, from coastal surge and offer stormwater retention within the watershed. The final conceptual alternative encompasses a full range of ecological restoration techniques that include enhancement and creation of maritime forest habitat, natural stream channels, freshwater and brackish/tidal wetland systems, transitional scrub-shrub, native upland grassland, and floodplain vegetative communities.

These natural system features are integrated with tide gates, rock stabilization, and other hard-armoring elements.