

## Hurricane Sandy Raises the Yards, Permitting Raises the NEPA Bar

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An over 9-foot high storm surge from Super Storm Sandy caused extensive service outages and damage to NYCT facilities particularly in low lying yards, stations, fan plants, under river tubes and subway tunnels across New York City. Sandy flooded the 45-acre 207<sup>th</sup> Street Yard on the Harlem River and then flowed like a funnel into the A Line tunnel, crippling subway service. Saltwater caused wide-spread damage to third rail power, electrical, mechanical, signals and communications systems. The 207<sup>th</sup> Street Yard operations, which houses NYCT’s primary subway car maintenance shop, 10 miles of storage track for several service lines, and garbage processing for all of Manhattan and the Bronx – came to a halt.

Using Federal Emergency Management Agency (FEMA) flood resiliency funding administered by the Federal Transit Administration (FTA), the Metropolitan Transportation Authority – New York City Transit (NYCT) plans to protect their existing 207<sup>th</sup> St. Yard’s assets from flood damage; prevent flooding in the associated tunnel portal; and minimize disruptions to NYCT subway operations from a Category 2 hurricane storm surge. Proposed flood mitigation and resiliency measures include a contiguous perimeter floodwall surrounding the yards; flood gates at yard entrances; flood barriers at the tunnel portal; stormwater drainage improvements and lightweight concrete fill below existing timber platform to prevent secondary (backup) flooding. The perimeter wall design crest elevation was established at +18.8 foot (NAVD88) using The Sea, Lake and Overland Surges from Hurricanes (SLOSH) model for a Category 2 storm plus 3 ft. (including an additional 1 ft. each for wave run-up, future sea level rise, and freeboard)..

The project site is primarily within a FEMA-mapped 100-year tidal floodplain along the Harlem River, located in an Environmental Justice (EJ) neighborhood of Manhattan, and is adjacent to a New York State Department of Environmental Conservation (NYSDEC) protected tidal mudflat salt marsh.

To meet the accelerated project schedule and FEMA funding milestones, HDR developed a concurrent NEPA and Section 404 Permitting process for the project. This approach saved approximately 9 months to 1 year off the project schedule. HDR streamlined the documentation efforts by preparing comprehensive and universal materials, including the alternatives analysis, purpose and need statement, resource figures, site photographs, resource assessments and design plans that met the NEPA, as well as the permit applications for the U.S. Army Corps of Engineers (USACE) Section 10 and 404, NYSDEC Tidal Wetlands/Water Quality Certificate, New York State Office of General Services Use of Lands Underwater, New York State Department of State Coastal Zone Consistency, New York City Department of City Planning Waterfront Revitalization Program. This concurrent effort allowed for simultaneous submittals of NEPA and pre-construction permitting applications. HDR and NYCT worked together with these agencies to provide information, discuss alternatives and construction options, and coordinate permitting decisions.

The concurrent NEPA and permitting process underscored the fact that the additional impact analyses and mitigation details necessary for permitting are not always covered during NEPA processes. Permitting and mitigation details had to be developed conservatively ahead of the preliminary project designs typically sufficient for NEPA. Unexpected hurdles were encountered during the review process,

including records of John F. Kennedy's PT-59 Boat buried at the site, a former slave cemetery, Native American occupation, extensive wetlands impacts requiring mitigation, a vocal EJ community opposed to the floodwall, and a local wildlife enthusiast, self-described as "The Birdman" (yes, it coincided with the movie release). Concerns over potential impacts to John F. Kennedy's PT-59 Boat were raised during the permitting process, after the NEPA Section 106 process was completed, requiring further analysis. The State permitting authority, NYSDEC, changed their minds on the wetland mitigation requirements after the NEPA document was complete, as well. The public review of the permit application caught the attention of the community, requiring extensive coordination. The NEPA sufficiency bar had to be raised and fortunately "win-win" solutions were developed. A long-term community vision to restore a local wetland was incorporated into the mitigation plan. Public meetings were held to alleviate community's concerns with the project, add mitigation into the floodwall design, and capture the community board's endorsement of the wetland mitigation plan. The community board's endorsement of the mitigation plan also eased the NYSDEC decision to accept the wetland mitigation plan. Additional design and mitigation details triggered by the permitting process, exceeding typical NEPA requirements, were ultimately incorporated into the NEPA document.

Several advantages and lessons learned from the concurrent NEPA and Permitting process can be shared. In the end, a potentially controversial project resulted in NYCT givebacks to an underserved EJ community. FTA complimented the NEPA document as *'very comprehensive and thoughtfully put together to the extent that it was easy to follow and understand'* and ultimately allowing for a streamlined NEPA review. The NYCT was also pleased with the comprehensiveness of the NEPA document, stating that *"HDR has definitely raised the NEPA bar."*