

## **ABSTRACT**

*This proposal for enhancing coastal resiliency at Jamaica Bay, New York consists of strategic design recommendations for the Rockaway Peninsula, the central marsh islands, and Back Bay communities. These recommendations, developed in a progressive academic research laboratory with the support of USACE, embrace the vast scale of Jamaica Bay as an asset for exploring USACE's new focus on developing nature-based features as viable coastal storm risk reduction techniques. The Jamaica Bay resiliency plan includes three strategies developed through field research and modeling, both physical and digital. The first strategy addresses water quality and the reduction of back-bay flooding via a series of over wash plains, tidal inlets, and flushing tunnels at the Rockaway Peninsula and Floyd Bennett Field. The second strategy develops enhanced verges at Robert Moses' Belt Parkway and elevates of coastal edges at vulnerable back-bay communities, managing flood risk with a layered system of marsh terraces, berms, and sunken attenuation forests. The third strategy develops novel techniques of bay nourishment and marsh island restoration through maximizing the efficacy of minimal quantities of dredged material. This "island motor / atoll terrace" would align with local cycles of maintenance dredging. Dredged material from maintenance dredging may be beneficially reused to nourish the Rockaways' coastal beaches, enhance the bay's marsh islands, and create living shorelines at the back-bay perimeter. A resilient marsh ecosystem provides coastal storm risk management services to adjacent communities through wind and wave attenuation, delivering maximum immediate benefits for both vulnerable communities and the disappearing salt marsh islands.*