



Raritan River Dredging to Help Revitalize New Jersey Waterfront

By Joseph Puzio, PE and Elena Barnett

An area of vast bays, salt and freshwater marshes, and streams enriched by a bounty of birds and fish, the Hudson-Raritan estuary is a natural resource cherished by millions in the New Jersey/New York region.

While known for its splendor and recreational value, substantial tracks of land along the Raritan River are actually abandoned industrial properties. To make the most out of this property and attract new businesses, the Middlesex County (New Jersey) Improvement Authority (MCIA) initiated a Raritan redevelopment program to go hand in hand with a U.S. Army Corps of Engineers (USACE) effort targeted at restoring the estuary.

The MCIA program includes the revitalization or creation of parks and boat ramps along the river. Commercial waterfront plans incorporate redevelopment of Brownfield sites, including a new ferry terminal, a fishing pier at a former Spectra Serv site in South Amboy, New Jersey, and multi-use redevelopment projects located in Sayreville, New Jersey.

To support waterfront redevelopment and facilitate access to properties adjacent to the river – which has experienced significant siltation, resulting in inhibited movement of recreational and commercial boat traffic – improved navigation through dredging is a necessity.

Subprojects Provide Myriad Benefits

At the urging of the New Jersey Department of Environmental Protection (NJDEP) and USACE, MCIA divided the dredging program into several

subprojects along the Raritan River throughout New Jersey to streamline the process. The basis was recreational or commercial subprojects originally created to facilitate MCIA's overall redevelopment program.

Ultimately, four dredging subprojects were included: a 60-foot-wide channel from the Albany Street Bridge in New Brunswick to Red's Marina in Highland Park; an additional area in New Brunswick to provide access to the location of a proposed boathouse; a stretch of riverfront in Sayreville to allow access to a Brownfield site, which will be developed into a multi-use waterfront; and in South Amboy to support that city's redevelopment of an additional Brownfield site.

The identification of separate subprojects is key to the overall approach to the dredging program. By permitting each subproject separately, the permitting process could be streamlined further. Since each subproject is on a different schedule and requires separate funding plans, this approach can best meet the navigational needs and timing of the planned water dependent uses within each subproject.

As important first steps in the dredging process, MCIA had to determine whether the project itself was feasible; characterize and ascertain how to handle the dredge material for permitting purposes; and secure funding for each of the subprojects.

Dredging and Characterization

Dredging portions of the Raritan River to extend navigation, promote recreational activities and re-establish commercial

Brownfield sites with river access is feasible. Additionally, several recent dredging projects within New Jersey have set a precedent for reusing dredge material in upland Brownfield sites and as a portion of fill material, pending characterization and approval by NJDEP.

To determine whether dredge material from the MCIA subprojects would be suitable for these uses, sediment samples were taken from various locations within each subproject for characterization. For the two projects in New Brunswick and Highland Park, field sampling and laboratory analyses were performed to obtain the required characterization data, based on a sediment sampling plan approved by NJDEP. For Sayreville, extensive sampling and analysis had been conducted in the project area in June 2000; consequently, no further field sampling was conducted.

Concentrations of compounds detected in the sediments were compared to federal and state regulations to determine which exceeded acceptable levels.

Ultimately, some samples within New Brunswick/Highland Park slightly exceeded NJDEP residential Direct Contact Soil Cleanup Criteria (DCSCC) for cadmium only, allowing that the majority of dredge material from the area may be suitable for beneficial reuse as clean fill with limited stabilization.

The predominately silt and clay sediments at the Brownfield site in Sayreville have multiple parameters that exceed NJDEP DCSCC, which will likely require soil stabilization to meet NJDEP permit requirements for beneficial upland reuse.

The level of soil stabilization is determined by the physical and chemical composition of the dredge material and can include the mixing of dredge material with Portland cement.

Stabilized dredge material could be used as fill and capping material at Brownfield project sites or disposed of at upland confined disposal facilities, contained aquatic disposal pits or nearshore/island containment areas.

Dredge Volumes Dictate Overall Cost

A hydrographic survey was performed in November 2000 to calculate the estimated dredge volumes necessary to complete most subprojects. These estimated volumes were used to prepare initial cost estimates and determine the amount of necessary funding to implement the project.

The major cost factor in each subproject is the quantity of dredged material that requires stabilization to immobilize pollutants in the river sediments. The expense of dredging and transportation is also a significant component.

Several cost-saving options exist, including alignment/channel cross-section changes to reduce the overall dredging quantity; and additional sediment testing to refine the characterization, which supports a NJDEP determination that the dredged material is suitable for residential or non-residential use, without treatment.

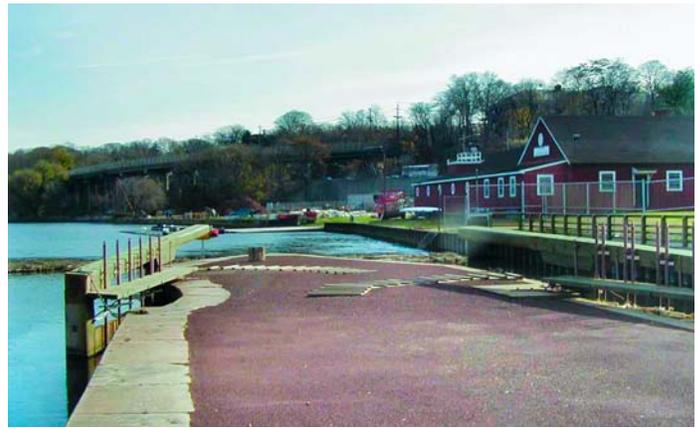
Subprojects Create Funding Options

While it is likely USACE and project sponsors will fund dredging for commercial purposes, HDR is working with MCIA on funding options for all subprojects, including potential federal, state and local opportunities.

The NJDEP Green Acres program offers funding opportunities for park development (anything that supports outdoor recreation, including boating). A 50 percent matching grant may be available for all aspects of the subproject located in New Brunswick, including dredging. Because the recreational navigation subproject is located in an urban aid program area and is intended for public use, it should receive higher funding priority. Multiple government agencies, such as New Brunswick and Middlesex County, can apply for funds for the same project over a period of successive years.

Commercial subprojects in Sayreville and South Amboy may be eligible for funding from the Continuing Authorities Program or Congressional authorization of USACE. Because the sediment has been identified as exceeding NJDEP DCSCC standards, they may be classified as Section 1135 projects, which often receive funding priority. If so designated, USACE would provide 100 percent funding for a reconnaissance study and 50 percent funding for a feasibility study, both of which are required by USACE.

Low interest loans, available from entities such as the NJDEP Division of Water Quality's Clean Water State Revolving Fund (CWSRF) may be necessary to finance the cost-sharing portion



Several subprojects – including the Rutgers Boathouse – help streamline permitting and funding for dredging needed to improve navigational access.

of the subprojects. Each CWSRF project is financed with two loans: the NJDEP utilizes federal State Revolving Fund capitalization grants and the New Jersey Environmental Infrastructure Trust utilizes trust bond sale proceeds. The NJDEP loan is issued at zero percent interest and has no associated fees. The Trust loan is issued at the rate the Trust obtains from the bond sale.

Next Steps

County leaders and the project team are reviewing the project and determining next steps, which may include selecting upland disposal locations and finalizing dredge material placement; obtaining funding grants and loans for subprojects; obtaining permits and approvals by NJDEP and USACE; and preparing dredging design and specifications.

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