Chapter 23: Irreversible and Irretrievable Commitment of Resources

23.0 INTRODUCTION

As discussed in Chapter 1, "Purpose and Need and Alternatives," the Proposed Actions are one or more proposed initiatives intended to enhance coastal and social resiliency along the Tottenville shoreline of the South Shore of Staten Island. These initiatives include the Breakwaters Project and Shoreline Project. The Federal Council on Environmental Quality's (CEQ) regulations implementing the procedural provisions of the National Environmental Policy Act (NEPA), as set forth in 40 C.F. R. §§ 1502.16, requires federal agencies to consider any irreversible or irretrievable commitment of resources in the evaluation of environmental consequences should a proposal be implemented.

Similarly, the New York State Environmental Quality Review Act (SEQRA) regulations identify that the contents of an environmental impact statement (EIS) include an evaluation of any irreversible and irretrievable commitments of environmental resources that would be associated with the proposed action should it be implemented [6 NYCRR § 617.9 (b)(5)(iii)(c)]. Resources which should be considered include natural and man-made resources that would be consumed, converted or made unavailable for further uses due to construction, operation, or use of the Proposed Actions, whether those losses would occur in the immediate future, or over the long term. Examples include the filling of wetlands; removal of vegetation without replacement, paving over or construction on valuable agricultural soils; use of non-renewable, or non-recyclable materials for construction; and use of fossil fuels in construction or operation of a project.

23.1 ALTERNATIVE 1—NO ACTION ALTERNATIVE

Under the No Action Alternative, the current trends with respect to coastal conditions at Tottenville—i.e., relating to erosion, wave action, ecosystems, and water quality—will continue. This alternative would result in irretrievable and irreversible commitment of human effort, materials, energy, and financial resources in responding to shoreline erosion problems, and adverse effects due to wave action. Loss of shoreline, vegetation, and other resources under this alternative due to erosion would be irretrievable.

23.2 ALTERNATIVE 2 (PREFERRED ALTERNATIVE)—THE LAYERED TOTTENVILLE SHORELINE RESILIENCY STRATEGY: LIVING BREAKWATERS AND TOTTENVILLE SHORELINE PROTECTION PROJECT (LAYERED STRATEGY)

Construction of the Breakwaters Project and Shoreline Project would result in irretrievable loss of materials used for construction (e.g., concrete, rock, and asphalt), energy (gas and electricity), and human effort. Maintenance of the Breakwaters Project and Shoreline Project would similarly result in irretrievable loss of energy and human effort. These resources are considered

irretrievably committed because their reuse for some purpose other than the project would be highly unlikely. This commitment of resources and materials has been weighed against the public purpose and need of the Proposed Actions, and would provide various social, environmental and economic benefits. None of these resources are expected to be in short supply and funding has been allocated for the construction and maintenance of this alternative. This alternative would not result in the irretrievable loss of these same resources associated with responding to shoreline erosion problems, and adverse effects due to wave action.

Irretrievable losses include loss of natural resources, such as the loss of invertebrates within the 11.4-acre footprint of the breakwater segments, the ecological communities within the footprint of the Shoreline Project comprising 5.1 acres of a combination of the maritime beach and maritime dunes communities, and about 1.0 acre of successional southern hardwoods community, a few trees removed as a result of the Shoreline Project, up to 19 trees that would be removed for the proposed Water Hub at Potential Location 1, and additional trees that would be removed to provide access to the water that complies with the Americans With Disabilities Act (ADA) at Potential Location 2. These losses would be offset by the coastal plant species that would be planted within the Shoreline Project. Irretrievable losses would also include any potential effects to nesting success of breeding birds that may occur during construction of the Shoreline Project due to vegetation removal or increased vehicular and human activity during construction.

Irreversible commitment of resources would occur with the loss of approximately 0.14 acres of the 0.8-acre delineated tidal wetland that would be lost for the construction of the eco-revetment between Brighton and Manhattan Streets, and the western end of the proposed hybrid dune/revetment. This irreversible commitment of resources would be offset by the enhancement of the remaining portion of the wetland through increased tidal exchange, removal of the unpermitted sand bridge, removal of phragmites, and re-establishment of native saltmarsh plant species. The loss of approximately 3.6 acres of Waters of the U.S. and associated habitat due to the portion of the breakwaters above MHW would be another irreversible commitment of resources that would be mitigated through measures that may include the purchase of available credits from an approved mitigation bank, and restoration/enhancement of Waters of the U.S. within the Raritan Bay watershed in New York.

For the reasons presented above, Alternative 2 would not be expected to have any adverse impacts related to irreversible and irretrievable commitment of resources.

23.3 ALTERNATIVE 3—BREAKWATERS WITHOUT SHORELINE PROTECTION SYSTEM

Alternative 3 would develop the Breakwaters Project components as described in Alternative 2, including the in-water breakwaters, shoreline restoration and the Water Hub. None of the Shoreline Protection Project components would be developed under Alternative 3.

This alternative would result in the same irretrievable loss of materials used for construction (e.g., concrete, rock), energy (gas and electricity), and human effort but to a lesser degree than Alternative 2. Similarly, maintenance of just the Breakwaters Project would result in a smaller irretrievable loss of energy and human effort than Alternative 2. This alternative would result in the same irretrievable losses of natural resources, such as the loss of invertebrates within the 11.4-acre footprint of the breakwater segments and loss of approximately 3.6 acres of Waters of the U.S. and associated habitat due to the portion of the breakwaters above MHW, but would not

result in irretrievable loss of 0.14 acres of the delineated tidal wetland, or potential decreased nesting success associated with the construction of the Shoreline Project. This alternative would result in irretrievable loss of commitment of human effort, materials, energy, and financial resources in responding to shoreline erosion problems resulting from the decreased resiliency of this alternative when compared to Alternative 2.

23.4 ALTERNATIVE 4—SHORELINE PROTECTION SYSTEM WITHOUT BREAKWATERS

Alternative 4 would develop the Shoreline Project components as described in Alternative 2, including the earthen berm, hybrid dune/revetment, eco-revetments, and raised edge. None of the Breakwaters Project components would be developed under Alternative 4.

This alternative would result in the same irretrievable loss of materials used for construction (e.g., concrete, rock, and asphalt), energy (gas and electricity) and human effort but to a lesser degree than Alternative 2. Maintenance of just the Shoreline Project would result in a smaller irretrievable loss of energy and human effort than Alternative 2. This alternative would not result in the irretrievable loss of benthic resources within the 11.4-acre footprint of the breakwater segments and loss of approximately 3.6 acres of Waters of the U.S. and associated habitat due to the portion of the breakwaters above MHW, but would result in the same irretrievable loss of ecological communities and 0.14-acre portion of the delineated tidal wetland within the Shoreline Project as Alternative 2. This alternative would result in irretrievable loss of commitment of human effort, materials, energy, and financial resources in responding to shoreline erosion and impacts due to wave action when compared to Alternative 2. Alternative 4 would also result in the same irreversible commitment of resources with the loss of unmapped tidal wetland described for Alternative 2 above. ✷