

12.0 INTRODUCTION

This chapter examines the potential effects on the study area transportation systems with the implementation of one or more proposed initiatives (Proposed Actions) intended to enhance coastal and social resiliency along the Tottenville shoreline of the South Shore of Staten Island. These initiatives include the Living Breakwaters Project (Breakwaters Project) and the Tottenville Shoreline Protection Project (Shoreline Project). The screening assessment presented in this chapter was conducted pursuant to the methodologies outlined in the 2014 *City Environmental Quality Review (CEQR) Technical Manual*.

The Breakwaters Project (as part of Alternatives 2 and 3) would include a community Water Hub facility, which would provide a place for access to the waterfront and space to engage students in waterfront education, oyster restoration and reef building, and cultivating long-term estuary stewardship. One of three potential locations under consideration will be selected for siting the proposed Water Hub facility. Potential Location 1 is located in the vicinity of the southern terminus of Page Avenue (involving the construction of a new structure). Potential Location 2 is located at the north-west end of Conference House Park (involving the rehabilitation and adaptive reuse of an existing New York City Department of Parks and Recreation [NYC Parks] building). Potential Location 3 would involve a “floating” Water Hub—a vessel operated by a non-profit organization that would visit the breakwater project area (off-shore) and would be docked at existing facilities in the City that are permitted for similar types of marina operations. It is anticipated that the development size and associated transportation-related trips of the Water Hub would be larger at Potential Location 1 as compared to Potential Locations 2 or 3. Therefore, this transportation assessment conservatively assumes the location and development program associated with Potential Location 1.

12.1 PRINCIPAL CONCLUSIONS

The elements of the Shoreline Project (as part of Alternatives 2 and 4) are expected to generate minimal incremental traffic, transit, or pedestrian trips for any peak hour of daily operations during the weekday or weekend day.

Activities associated with the Breakwaters Project (as part of Alternatives 2 and 3), and specifically the proposed Water Hub (at either potential location), would generate transportation-related trips to and from the project site. However, the frequency of Water Hub activities is expected to be sporadic (and spread out among different days of the week and time of the day) and most events would not draw daily patrons. Collectively, activities associated with the Shoreline Project and Breakwaters Project (assuming Potential Location 1) are not expected to generate incremental traffic, transit, or pedestrian trips that would exceed the *CEQR Technical Manual* Level 1 screening analysis thresholds for any peak hour of daily operations during the weekday or weekend day. Additionally, the magnitude of daily trips anticipated on the surrounding transportation network would decrease if the Water Hub is located at Potential

Location 2 due to a smaller development program. Therefore, the Proposed Actions are not expected to result in the potential for any significant adverse transportation impacts.

12.2 PRELIMINARY ANALYSIS METHODOLOGY

The *CEQR Technical Manual* recommends a two-tier screening procedure for the preparation of a “preliminary analysis” to determine if quantified analyses of transportation conditions are warranted. As discussed below, the preliminary analysis begins with a trip generation analysis (Level 1) to estimate the volume of person and vehicle trips attributable to the proposed project. If the proposed project is expected to result in fewer than 50 peak hour vehicle trips and fewer than 200 peak hour transit or pedestrian trips, further quantified analyses are not warranted. When these thresholds are exceeded, detailed trip assignments (Level 2) are performed to estimate the incremental trips at specific transportation elements and to identify potential locations for further analyses. If the trip assignments show that the proposed project would result in 50 or more peak hour vehicle trips at an intersection, 200 or more peak hour subway trips at a station, 50 or more peak hour bus trips in one direction along a bus route, or 200 or more peak hour pedestrian trips traversing a pedestrian element, then further quantified analyses may be warranted to assess the potential for significant adverse impacts on traffic, transit, pedestrians, parking, and vehicular and pedestrian safety.

12.2.1 TRANSPORTATION-GENERATING PROJECT ELEMENTS

As detailed in Chapter 1, “Purpose and Need and Alternatives,” there are four Alternatives being studied in this environmental impact statement (EIS). Alternative 1 is the No Action alternative, and assumes that no new structural risk reduction projects or marine habitat restoration projects will be implemented in the project area; Alternative 2 consists of the implementation of two individual projects: the Breakwaters Project and the Shoreline Project; Alternative 3 includes only the Breakwaters Project component; and Alternative 4 includes only the Shoreline Project component. Alternatives 2 and 3 propose a community Water Hub as part of the Breakwaters Project, which would provide a place for access to the waterfront, orientation, education, information on shoreline resiliency, gathering space and equipment storage. The Water Hub would provide space to engage students in waterfront education, oyster restoration and reef building, and cultivating long-term estuary stewardship. Programming would educate residents about the coastal environment, with its risks and benefits, and build awareness, and preparedness and stewardship within the community. The Breakwaters Project would also include several on-shore and near-shore landscape elements in the area of the Water Hub. Activities associated with the proposed Water Hub would generate transportation-related trips to and from the project site.

One of two potential locations are under consideration for siting the proposed Water Hub on-shore in the Tottenville neighborhood of Staten Island. Potential Location 1 is located in the vicinity of the southern terminus of Page Avenue (involving the construction of a new structure) and Potential Location 2 is located in the north-west portion of Conference House Park (involving the rehabilitation and adaptive reuse of an existing NYC Parks building). It is anticipated that the development size of the Water Hub would be larger at Potential Location 1 as compared to Potential Location 2 and this transportation assessment conservatively assumes the location and development program associated with Potential Location 1. The proposed Water Hub would be located in an area served by limited transit options. With transit access available directly via the S59 and S78 or by transfer to these local bus routes from the Staten Island

Railway, and via X17, X22, and X22A express bus routes, most trip-making to the Water Hub is expected to be made via automobile.

The transportation assessment is based on the reasonable worst case development scenario (RWCDS) for the proposed Water Hub, as the final size and programming are yet to be finalized. The RWCDS building footprint for the Water Hub at Potential Location 1 is estimated to be approximately 5,000 gross square feet (gsf), with an associated 35,500 sf of site improvements (including a paved parking lot with a capacity of 1 bus, 20 cars, and 30 bikes). The proposed development program for the Water Hub at Potential Location 1 is summarized in **Table 12-1** and a summary of projected activities (and their frequencies) within the Water Hub is summarized in **Table 12-2**.

Comparatively, the programming for the Water Hub at Potential Location 2 is estimated to be below approximately 3,500 gsf, with an associated 10,000 sf of site improvements including outdoor classroom/exhibit space, a potential Americans with Disabilities Act (ADA) accessible ramp to the water, and improvements to the existing parking to accommodate approximately 3 cars and 6 bicycles. Other parking for Water Hub activities at Potential Location 2 would be accommodated at the existing Conference House Park Visitor’s Center. Should Water Hub programming be located at Potential Location 2, a small facility to provide seating, wayfinding and potential storage for kayaks and beach cleaning equipment would be constructed near the terminus of Page Avenue. This structure would be a pavilion, shed or other light structure with a footprint of 1,600 sf or less. The existing parking facilities at the terminus of Page Avenue would be used to access this facility.

Table 12-1
Water Hub RWCDS Development Program—Potential Location 1

Components/Use	Future With Action ¹
Classroom/Multipurpose Space (1,500 gsf)	Community event space, library, classroom for maximum of 40 people
Exhibition Space (1,000 gsf)	Touch tank and weather station
Indoor Restoration Station With Equipment (1,000 gsf)	Maximum of 35 people
Office and Storage (600 gsf)	Office and indoor storage
Overlook/Terrace (800 gsf rooftop)	Maximum of 160 people standing ²
Solar/Wind/Sustainable Energy (1,000 gsf rooftop)	Roof area for solar panels
Outdoor Flex Shaded Area (3,500 gsf)	Outdoor classroom and exhibition space
Kayak Storage (1,000 gsf)	Maximum of 35 kayaks
Outdoor Parking Area (28,000 gsf)	1 bus, 20 cars, 30 bikes
Note:	
¹ This transportation assessment conservatively assumes the location and development program associated with Potential Location 1 for the proposed Water Hub. The development program and magnitude of daily trips anticipated on the surrounding transportation network would decrease if the Water Hub is located at Potential Location 2 and as a result detailed programming and activities at this location are not included in this assessment.	
² 160 represents the maximum number of people that could be accommodated on the rooftop and could occur in conjunction with a special event. The number of visitors using the rooftop during typical daily activities would be well below 160.	
Source: SCAPE / Landscape Architecture PLLC	

Table 12-2
Projected Water Hub Activities—Potential Location 1

Proposed Event/Activity	Season/Month	Frequency	Approximate Attendance (persons)	Likely Travel Method
Tree planting events	Spring/Fall	Twice per year	100–300	Auto/bus
Beach cleanups with schools, Boy Scouts, and Girl Scouts	Throughout the year	Ideally three times per week and as scheduled	Groups of 10–50	Auto
First day of season beach walks	Spring, Summer, Fall, and Winter	Four times per year	5–25	Auto
Earth/Arbor Day activities	April	One day or week per year	25–100	Auto/Bus
DEC citizen science Horseshoe crab monitoring	May–June	Once a year	5–15	Auto
CHP Dunes, Drawing, and Dendrology “Walk and Talk”	May–September	Once per month (Sunday)	5–25	Auto
CHP Dunes, Drawing, and Dendrology EarthART	May–September	Once per month (Wednesday)	5–25	Auto
CHP Dunes, Drawing, and Dendrology “Chalk and Talk”	May–September	Once per month (weekday)	5–25	Auto
CHP Dunes, Drawing, and Dendrology “Coastal Crafting”	May–September	Once per week (Saturday)	5–25	Auto
Shore birding talks and walks	Spring and Fall	Four times per year	5–25	Auto
Exhibitions	Throughout the year	Shows generally run for 4–6 weeks	100–200	Auto
Greenbelt Education extension (maritime focus)	July–August (summer camp and school field trips during the school year)		Summer Camp 20–25 Field Trips—10–15	Auto/Bus
Billion Oyster Project (BOP) Affiliated School Classes	September–November April–June	Two to three days per week (one class per day)	35	Bus

Source: BOP and NYC Parks

The Water Hub site at either location would include access to the water. At Potential Location 1, access to the water from the shore would be provided by means of a seasonally deployed temporary floating boat launch near the terminus of Page Avenue. At Potential Location 2, access would either be provided in the area of one of the houses being adaptively reused for Water Hub activities, or at the existing Conference House Park pavilion. Peak activity associated with the boat launch is expected from September to October and April to June. It is assumed that the boat launch would be used by one boat two to three days per week during peak activity and once per week during off peak activity, depending on the tide, and would make one trip per day. Use of the boat launch would generally coincide with educational activities taking place at the Water Hub, with additional sporadic trips during the month for research or education related to the breakwaters from the Billion Oyster Project or other researchers in the harbor. As a result, there would be a negligible increase in water activity due to the seasonal boat launch.

In addition to the activities detailed in **Table 12-1**, special kayaking events may take place on the beach during the summer months (late May through September). These kayaking events may consist of a nonprofit organization supplying kayaks for patrons to use out in the water for short durations. Typically, these types of events include a varying number of patrons (up to 200) and up to 15–20 volunteers over a two to three-hour period with kayak rentals lasting 15 to 20 minutes. The volunteers would be responsible for signing up patrons to use kayaks and

providing life jackets, etc. These events typically take place on various beaches throughout Staten Island and happen rather sporadically (in general and per location).¹

The Shoreline Project (Alternatives 2 and 4) would consist of a series of shoreline risk reduction measures, including an earthen berm, a hybrid dune/revetment system, eco-revetments, raised edge (revetment with trail), wetland enhancement, and shoreline plantings—from approximately Carteret Street to Page Avenue within the existing Conference House Park. ADA accessible trails, access points and overlooks would be constructed along the shoreline protection system. The Shoreline Project is not expected to generate incremental traffic, transit, or pedestrian trips that would exceed the CEQR Technical Manual analysis thresholds for any peak hour of daily operations during the weekday or weekend day.

12.3 EFFECTS ASSESSMENT

12.3.1 ALTERNATIVE 1—NO ACTION ALTERNATIVE

Under the No Action Alternative, no new structural risk reduction projects or marine habitat restoration projects will be implemented in the project area and there would not be any new construction or programming within the project site. The existing Conference House Pavillion is currently undergoing renovations as a result of damage from Superstorm Sandy. There are a few residential projects expected to occur in the within a ½ mile of the proposed site, however, all of these planned residential projects are modest in size (single family and two family homes) and would generate an imperceptible amount of new trips. As per *CEQR Technical Manual* guidelines, existing traffic and pedestrian volumes would be assumed to increase by an annual background growth rate of 1.0 percent from years 2016 to 2020 for a total growth of approximately 4.1 percent. With these small increases in trip-making, conditions under the No Action Alternative are expected to be similar to those experienced under existing conditions.

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

As described in Chapter 1, “Purpose and Need and Alternatives,” the Layered Strategy consists of the implementation of two individual projects: the Breakwaters Project and the Shoreline Project.

The primary component of the Breakwaters Project would be an ecologically enhanced breakwater system that would provide coastal risk reduction by reducing wave energy at the shoreline, and reducing or reversing shoreline erosion. The breakwater system would increase habitat diversity by providing a combination of exposed, intertidal, and subtidal reef habitat, including “reef streets” (pockets of habitat complexity within the structure). Another key project element is a proposed community Water Hub that would provide a physical space for access to the waterfront, orientation, education, information on shoreline resiliency, community gathering space and, if located on-shore, and equipment storage for NYC Parks maintenance. As discussed

¹ Since the issuance of the DEIS, during the summer of 2017, there were eight of these special kayaking events at the beach adjacent to Page Avenue on Sundays at varying time periods between early morning and early evening. These events averaged approximately 60 patrons and 15 volunteers over a two-hour period which is substantially lower than the activity that was projected per event in the DEIS.

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above, the Water Hub could be sited at one of three potential locations and this assessment conservatively assumes the location and development program associated with Potential Location 1, located in the vicinity of the southern terminus of Page Avenue (involving the construction of a new structure). The new facility would host restoration and educational programs including field science monitoring activities for local community and school groups, as well as expand on the existing stewardship, educational and other community activities which currently take place in Conference House Park. An accessory seasonal boat launch would be included in the vicinity of the Water Hub. Additionally, an outdoor parking facility would be constructed, with a capacity of 1 bus, 20 cars, and 30 bikes, to accommodate patrons visiting the Water Hub and other adjacent uses. The project would also include a one-time addition of new sand for shoreline restoration along approximately 806 feet of shoreline between Manhattan Street and Loretto Street to build up a particularly narrow, eroded section of the beach.

The Shoreline Project would consist of a series of shoreline risk reduction measures, including an earthen berm, a hybrid dune/revetment system, eco-revetments (one section between Brighton Street and Manhattan Street, and one section between Loretto Street and Sprague Avenue), and a raised edge (revetment with trail), along with wetland enhancement, and native coastal plant species, from approximately Carteret Street to Page Avenue. From Carteret Street to Brighton Street, within a wooded area of Conference House Park, the system would include a raised earthen berm that would be set back in the forest, leaving an expansive area of woodland in front of it with expansive waterfront views. The berm would be planted with native vegetation. At Brighton Street, the berm would tie into an eco-revetment which would then tie into an armor core hybrid dune/revetment system at Manhattan Street. At approximately Loretto Street the beach narrows, leaving no space for a hybrid dune/revetment, and thus the proposed dune/revetment system would transition to a stone eco-revetment along Surf Avenue. This section of eco-revetment would be constructed with stepped planters, and potentially stepped seating and ADA accessible overlooks. At approximately Sprague Avenue, the proposed eco-revetment would tie into the raised edge—a stretch of revetment and trail—which would continue to the project’s terminus, near Page Avenue. Running along and adjacent to these elements, the project would provide an interconnected, seamless, and ADA accessible waterfront trail along the shoreline, connecting the Shoreline Project elements and the proposed Water Hub elements to the existing Conference House Park trail system. Finally, habitat enhancements would be included with the project, including wetland improvements (both functional and aesthetic); shoreline plantings; and green infrastructure.

As shown in **Table 12-2**, although there are many different activities that could take place within the proposed Water Hub, the frequency of these activities are expected to be sporadic (and spread out among different days of the week and time of the day) and most events would not draw many patrons. Additionally, it is expected that all of these activities would be made by either private autos or school buses and patrons would park within the outdoor parking area and connect directly to the site without traversing the City Streets and sidewalks surrounding the project site. Similarly, the Shoreline Project is not expected to generate additional trips to the surrounding transportation systems that would exceed *CEQR Technical Manual* thresholds.

Collectively, activities associated with the special kayaking events, the Water Hub at Potential Location 1, and the Shoreline Project are not expected to generate incremental traffic, transit, or pedestrian trips that would exceed the *CEQR Technical Manual* Level 1 screening analysis thresholds for any peak hour of daily operations during the weekday or weekend day. Therefore, detailed analyses of the surrounding transportation system are not warranted and Alternative 2 is not expected to result in the potential for any significant adverse transportation impacts. As

discussed above, the magnitude of daily trips anticipated on the surrounding transportation network would decrease if the Water Hub is located at Potential Location 2 due to a smaller development program. Therefore, similar to Potential Location 1, detailed analyses of the surrounding transportation system are not warranted and Alternative 2 is not expected to result in the potential for any significant adverse transportation impacts.

12.3.3 ALTERNATIVE 3—BREAKWATERS WITHOUT SHORELINE PROTECTION SYSTEM

Under this alternative, only the Breakwaters Project would be implemented, without the Shoreline Project. As described under Alternative 2, detailed analyses of the surrounding transportation system would not be warranted and the proposed project is not expected to result in any significant adverse traffic, transit, pedestrian, or parking impacts under this alternative.

12.3.4 ALTERNATIVE 4—SHORELINE PROTECTION SYSTEM WITHOUT BREAKWATERS

Under this alternative, only the Shoreline Project would be implemented, without the Breakwaters Project. As described under Alternative 2, the Shoreline Project would not generate additional trips to the surrounding transportation systems. Therefore, detailed analyses of the surrounding transportation system would not be warranted and the proposed project is not expected to result in any significant adverse traffic, transit, pedestrian, or parking impacts under this alternative.

12.4 MINIMIZATION AND MITIGATION OF IMPACTS

The Proposed Actions would not result in significant adverse transportation impacts. Therefore, no mitigation with respect to transportation is required. *