

4.10 Summary of Environmental Consequences

Table 4.45 provides a summary of environmental consequences by alternative. This provides a summary of the environmental disciplines as described in this section of the DEIS. Section 6 provides the comprehensive analysis between the Build Alternatives (including each option within each Build Alternative) and the No Action Alternative as it relates to environmental disciplines, as well as engineering constraints and the overall purpose and need of the project. The outcome of the analysis in Section 6 is the identification of the Preferred Alternative. Unless otherwise specified in the table or within each pertinent discipline's impact discussion, all short-term impacts identified in **Table 4.45** are construction related.

In addition to the summary of environmental consequences, a discussion of irreversible and irretrievable commitment of resources, unavoidable significant adverse impacts, and growth-inducing aspects of the Project are also provided.

Irreversible and Irretrievable Commitment of Resources

CEQ (40 CFR 1502.16) states that a project should consider the irreversible and irretrievable commitment of resources. This refers to the usage or loss of resources in a way that cannot be recovered after a project is implemented. This can include the use of

non-renewable energy (such as usage of fossil fuels to power construction equipment), commitment of land to alternative uses (such as taking productive agricultural land out of use and converting it to urban uses), or the extraction of mineral resources from the ground.

The Project is not anticipated to irreversibly utilize or commit a significant quantity of resources. Implementation of the Project would result in irreversible usage of resources in the forms of raw building materials for the construction of the Project features, as well as consumption of non-renewable energy (such as fossil fuels) to power construction equipment. However, given the overall size of the Project and duration of construction activities, they are not anticipated to substantially deplete available quantities of these resources. Construction would also involve usage of labor that could otherwise be made available to other projects. The construction of the Resist component is expected to permanently impact 230 square feet of wetlands, but as described in Section 4.1.3.8, this impact is considered minor because the wetland is a man-made drainage ditch with a concrete lining and is classified as having an Ordinary Resource Value. The Project would also involve permanent easements on private property (see **Table 4.45**) and implementation of Alternative 1 would result in adverse irreversible visual impacts to the waterfront.

Unavoidable Significant Adverse Impacts

The implementation of the Project would not result in significant adverse impacts. The impacts of

consequence for the Project would include moderate, short-term adverse impacts arising from construction activities. This is limited to noise and vibration and transportation impacts to properties near areas of proposed construction. In addition, construction-related impacts to archaeological resources have the potential to be adverse and further evaluation of these resources would be conducted during construction as part of the implementation of the Project's Section 106 Programmatic Agreement. Flood model results also indicate that the Project may result in minor areas of additional flooding to five identified properties during a 100-year coastal storm surge event for Alternatives 2 and 3. Alternative 1 may result in increases to two identified properties during a 100-year coastal storm surge event. Alternative 1 would also pose an adverse impact to viewshed and accessibility to open space along the waterfront (Alternatives 2 and 3 have negligible impacts to viewshed and accessibility to open space along the waterfront). In order for the Project to be compliant with applicable state laws, either an easement must be acquired or written permission must be secured from the affected property owner(s) to authorize the modeled increase in flooding.

It should be noted that while no significant adverse impacts arise from the three Build Alternatives, implementation of the No Action Alternative would result in long-term adverse impacts to the community, through continued exposure to flood risks and extensive damage, comparable to Superstorm Sandy.

Growth Inducing Aspects of the Project

The Project is not anticipated to have growth-inducing aspects. The Study Area is currently built out and historically has shown continued development. This continued development has occurred despite repeated storm events. Growth within the Study Area is managed by municipal zoning and approved redevelopment plans. The Project does not propose to directly or indirectly change zoning or approved redevelopment plans. While the Project will include the use of easements, the land use of individual properties will not be changed by the Resist component. The large DSD sites will involve changing land use (e.g., from vacant land to recreational), but growth in those areas is already guided by zoning and approved redevelopment plans. No aspects of the project involve construction of additional residential, commercial, or industrial space.

Table 4.45 Comparative Summary of Environmental Consequences on the Human Environment by Alternative

RESOURCE	ALTERNATIVE 1	ALTERNATIVE 2	ALTERNATIVE 3	NO ACTION ALTERNATIVE
Geology	Negligible Impact	Negligible Impact	Negligible Impact	No Impact
Soils	Short-term, minor impacts	Short-term, negligible impacts	Short-term, negligible impacts	No Impact
Groundwater	Short-term, minor impacts; no long-term impacts	Short-term, minor impacts; no long term impacts	Short-term, minor impacts no long-term impacts	No Impact
Surface Water	Minor, short-term impacts during construction and negligible long-term benefits from reduction in CSO discharge	Negligible impacts during construction and negligible long-term benefits from reduction in CSO discharge	Negligible impacts during construction and negligible long-term benefits from reduction in CSO discharge	No Impact
Floodplains	Minor, long-term adverse impacts resulting from 3.2 acres of permanent floodplain disturbance and two properties expected to receive minor increases in flooding	Minor, long-term adverse impacts resulting from 2.8 acres of permanent floodplain disturbance and five properties expected to receive minor increases in flooding	Minor, long-term adverse impacts resulting from 2.8 acres of permanent floodplain disturbance and five properties expected to receive minor increases in flooding	No Impact
Aquatic Ecology	Short-term, minor impacts	Short-term, negligible impacts	Short-term, negligible impacts	No Impact
Wetlands	Minor, long-term loss of 230 square feet of marginal wetlands	Minor, long-term loss of 230 square feet of marginal wetlands	Minor, long-term loss of 230 square feet of marginal wetlands	No Impact
Upland Wildlife and Vegetation	Short-term, negligible to minor impacts	Short-term, negligible to minor impacts	Short-term, negligible to minor impacts	No Impact
Endangered Species	Short-term, minor impacts; likely to Adversely Affect	Short-term, negligible impacts; Not likely to Adversely Affect	Short-term, negligible impacts; Not likely to Adversely Affect	No Impact
Archaeological Resources	Potential adverse impacts to an unknown number of significant archaeological sites	Potential adverse impacts to an unknown number of significant archaeological sites	Potential adverse impacts to an unknown number of significant archaeological sites	No Impact
Historic Architecture	Minor, long-term impacts on historic setting resulting in Adverse Effects on five historic properties for Option 1 and four historic properties for Option 2	Minor, long-term impacts on historic setting resulting in Adverse Effects on four historic properties for Option 1 and three historic properties for Option 2.	Minor, long-term impacts on historic setting resulting in Adverse Effects on three historic properties for Option 1 and two historic properties for Option 2	No Impact
Air Quality	Minor, short-term impacts; meets general conformity requirements for all criteria pollutants	Minor, short-term impacts; meets general conformity requirements for all criteria pollutants	Minor, short-term impacts; meets general conformity requirements for all criteria pollutants	No Impact
Greenhouse Gas	Minor greenhouse gas emissions during construction and operations	Minor greenhouse gas emissions during construction and operations	Minor greenhouse gas emissions during construction and operations	No Impact
Noise	Adverse short-term noise impacts to schools, recreational users and residents of moderate intensity over the duration of construction	Adverse short-term noise impacts to schools, recreational users and residents of moderate intensity over the duration of construction	Adverse short-term noise impacts to schools, recreational users and residents of moderate intensity over the duration of construction	No Impact
Vibration	Potential minor to severe short-term structural impacts on 56 to 94 buildings. No long-term impacts anticipated because contractor would be responsible for repairing damages.	Potential minor to severe short-term structural impacts to 61 to 104 buildings. No long-term impacts anticipated because contractor would be responsible for repairing damages.	Potential for minor to severe short-term structural impacts to 65 to 108 of buildings. No long-term impacts anticipated because contractor would be responsible for repairing damages.	No Impact
Hazardous Waste	Moderate, long-term beneficial impacts	Moderate, long-term beneficial impacts	Moderate, long-term beneficial impacts	Hazardous soil and groundwater conditions in the Study Area would remain unchanged

Table 4.45 Comparative Summary of Environmental Consequences on the Human Environment by Alternative (continued)

RESOURCE	ALTERNATIVE 1	ALTERNATIVE 2	ALTERNATIVE 3	NO ACTION ALTERNATIVE
Population and Demographics	Major, long-term beneficial impacts due to reduced flood risk from coastal storm surge and rainfall events	Major, long-term beneficial impacts due to reduced flood risk from coastal storm surge and rainfall events	Major, long-term beneficial impacts due to reduced flood risk from coastal storm surge and rainfall events	Risk of flooding impacts from coastal storm surge and rainfall events unchanged in the short term; long-term risks may increase as storm intensity and frequency increases due to sea level rise and climate change
Minority and Low Income Populations	Major, long-term beneficial impact due to reduced flooding and minor adverse impacts during construction	Major, long-term beneficial impact due to reduced flooding and minor adverse impacts during construction	Major, long-term beneficial impact due to reduced flooding and minor adverse impacts during construction	Risk of flooding impacts from coastal storm surge and rainfall events unchanged in the short term; long-term risks may increase as storm intensity and frequency increases due to sea level rise and climate change
Public Health	Major, long-term benefits to 7,870 residents whose homes would no longer be flooded during a rain storm equal to or less than a five-year rain event	Major, long-term benefits to 7,870 residents whose homes would no longer be flooded during a rain storm equal to or less than a five-year rain event	Major, long-term benefits to 7,870 residents whose homes would no longer be flooded during a rain storm equal to or less than a five-year rain event	No change from current flooding frequency and associated risks to public health in the short term; long-term risks may increase as storm intensity and frequency increases due to sea level rise and climate change
Economic Conditions	Major, long-term economic benefits totaling \$1.814B, minor short-term disruption to businesses during construction offset by local hiring and expenditures by construction crews	Major, long-term economic benefits totaling \$1.783B, minor short-term disruption to businesses during construction offset by local hiring and expenditures by construction crews	Major, long-term economic benefits totaling \$1.782B, minor short-term disruption to businesses during construction offset by local hiring and expenditures by construction crews	No Impact in short term; long term increased impact to businesses due to disruptions from coastal surge and rainfall flooding events
Land Use and Zoning	No changes to Land Use and Zoning for Resist. Would require 14 permanent easements on 4.4 acres and permanent loss of zero to two parking spaces. DSD would result in long-term benefit to land use through changing vacant land to recreational uses	No changes to Land Use and Zoning for Resist. Would require 7 permanent easements on 1.3 acres and permanent loss of 13 to 31 parking spaces. DSD would result in long-term benefit to land use through changing vacant land to recreational uses	No changes to Land Use and Zoning for Resist. Would require 7 permanent easements on 0.7 acres and permanent loss of seven to 18 parking spaces. DSD would result in long-term benefit to land use through changing vacant land to recreational uses	No Impact
Viewshed	Long-term, adverse impacts on three of five key viewpoints	Negligible impact	Negligible impact	No Impact
Open Space	Long-term, beneficial impact through creation or enhancement of 12.91 acres of open space/ parkland (6.91 acres from Resist, six acres from DSD); however Hudson River Walkway would be elevated requiring access via ramps or steps	Long-term, beneficial impact through creation or enhancement of 9.53 acres of open space/ parkland (3.53 acres from Resist, six acres from DSD)	Long-term, beneficial impact through creation or enhancement of 8.55 acres of open space/ parkland (2.55 acres from Resist, six acres from DSD)	No Impact
Transportation	Moderate, short-term adverse impacts to traffic and circulation during construction	Moderate, short-term adverse impacts to traffic and circulation during construction	Moderate, short-term adverse impacts to traffic and circulation during construction	No Impact in the short term, but potentially long-term adverse impacts to transportation networks due to increased frequency and intensity of future storm events due to sea level rise and climate change
Infrastructure	Minor to moderate, short-term disruption of service due to relocation of utilities for construction of project infrastructure	Minor, short-term disruption of service due to relocation of utilities for construction of project infrastructure	Minor, short-term disruption of service due to relocation of utilities for construction of project infrastructure	No Impact in the short term, but potentially long-term adverse impacts to transportation networks due to increased frequency and intensity of future storm events due to sea level rise and climate change

Source: Dewberry. 2015-2017