Deltares USA

East Side Coastal Resiliency Project Review

Johannes C. Gehrels

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Title
East Side Coastal Resiliency Project Review

Project	Reference	Pages
1953a		71

Version	Date	Author	Initials	Review	Initials	Approval	Initials
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Summary

This report
The East Side Coastal Resiliency (ESCR) Project is a coastal protection initiative aimed at reducing flood risk due to coastal storms and sea level rise on Manhattan's East Side from East 25th Street to Montgomery Street.

This report provides a review of the concerns surrounding the ESCR project based on the public documentation of the Final Environmental Impact Statement (FEIS), interviews with stakeholders of the ESCR project, and a meeting with the City agencies involved in the ESCR project. In this review no additional or new investigations were carried out.

Interviews with stakeholders
Interviews were held with representatives of residents, interest groups, community boards, and government officials from the City, State and Federal level. The interviews with stakeholders made clear there is a general concern that since mid-2018 the process of stakeholder engagement has neglected community perspectives. This has resulted in a lack of ownership of the Preferred Alternative and a lack of understanding of how the Preferred Alternative is a logical further development of the original plan that was developed in the Rebuild by Design / Big U process ('RBD plan'). In general, stakeholders expressed skepticism about the Preferred Alternative and a lack of trust in the successful execution of a project of this magnitude.

Technical issues discussed with the interviewees related to flood protection, design, natural resources and biodiversity, execution time and project phasing, air quality and dust, noise and vibration, hazardous waste materials, and soil settlement and fill compaction.

Meeting with the City
A meeting was held with representatives from the Mayor's Office, the NYC Department of Design and Construction, NYC Parks, Manhattan Borough President's Office, and several third-party entities. The purpose of the meeting was to hear the City's perspective on the proposed project, to share the views and concerns of the interviewees with the City, and to discuss the differences in perspective and potential ways forward.

According to the City, under the Preferred Alternative, there is significant risk reduction in East River Park from flooding and inundation due to sea level rise while also providing substantial enhancements to recreational resources, in contrast to other alternatives, notably Alternative 3, where the flood protection system is aligned along the west side of the park. Additionally, the City believes the Preferred Alternative allows for a shorter construction duration, earlier deployment of flood protection and reduces construction disruption along FDR Drive. The City states increasing sea level will put East River Park more at risk under alternatives other than the Preferred Alternative

due to more frequent flooding from common storms or high tides. Such flooding would be avoided under the Preferred Alternative because the park would be elevated.

Synthesis
The input from the stakeholder interviews, the perspective of the City and the FEIS documentation were combined in an analysis of the concerns surrounding this project relative to the principal objectives stated for the ESCR Project's design, summarized here as: reliable coastal flood protection, improved access to and enhanced open space resources, and constructability and feasibility. Where appropriate, the Preferred Alternative (with flood protection by way of a raised park) is compared mostly with Alternative 3 (with flood protection by way of a floodwall and berms alongside FDR Drive) and with the RBD plan.

A general issue found in this review was the relative lack of available information on several aspects of the ESCR project design. The FEIS is based on project development, calculations, impact assessment, and comparison of alternatives. Underlying documents describing these inputs, however, are not publicly available. The FEIS therefore contains important statements that cannot be evaluated.

Recommendations
Transparency of the decision-making process by City agencies will help rebuild trust and gain support of the community. This would include making available the documentation that was used in the decision-making process, such as the technical studies, hydraulic and geotechnical field surveys and/or modelling, that form the technical basis of the project design. In addition, it would create more trust and relieve community concerns if the City were to provide more detailed mitigation plans for the construction works.

Community involvement and support of the project could be supported by establishing a community advisory group, and keeping community representatives involved in the late, detailed stages of project design.

It is recommended to execute monitoring of air quality, soil quality, dust, noise and vibration during construction and make this information available in online monitoring reports.

During construction, a severe storm may surge into the neighborhood more easily. It is therefore recommended to investigate installing Interim Flood Protection Measures during construction.

North of the project area there is no connecting flood protection system. It is recommended to conduct a hydraulic study to analyze whether additional measures are needed in this area.

It is recommended to agree to a phased construction within the park so that portions remain open to the public. In addition, it is important to ensure sufficient alternative active and passive open-space recreational resources.

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It is recommended to consider including the additional two feet of fill in the current project, rather than leaving it as a future option.

A strategic study on long-term future transportation scenarios of the FDR Drive would help to elucidate the options for placing green decking of FDR Drive.

It is recommended to conduct a study on urban flooding from rainfall to identify the extent in the neighborhood. This study could be connected to the City's green infrastructure program.

It is recommended to conduct a geohydrological study on shallow groundwater dynamics in the part of the project area around East Village that is susceptible to basement flooding, perhaps in combination with a geotechnical study on basement leakage.

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1 Introduction

The City of New York is currently conducting the Uniform Land Use Review Procedure (ULURP) public review process for a section of the “Big U” project, titled “East Side Coastal Resiliency” (ESCR) and extending from Montgomery Street to East 25th Street in Manhattan. The proposed project addresses coastal flooding vulnerability on the East Side of lower Manhattan by implementing a system of floodwalls, upgrading the underground sewers, and raising the John V. Lindsay East River Park (East River Park) above the 100-year floodplain.

As part of the review process, the City drafted an Environmental Impact Statement (EIS), in which environmental impacts of the proposed project alternatives were investigated and compared. The Draft EIS (DEIS) was released on April 5, 2019. The DEIS led to ample discussion among the general public, the communities that are directly involved in the project area, various stakeholder and environmental groups, the government of the borough, as well as the state and the federal governments. The Final EIS (FEIS) was released on September 13, 2019, with a 30-day public comment period that ends on October 15, 2019.

The borough of Manhattan has requested the consultation of Deltares on the environmental effects of this project and its perceived efficacy in defending communities against coastal flooding.

The objective of this report is to provide a review of the concerns surrounding the ESCR project based on the public documentation of the Final Environmental Impact Statement (FEIS), interviews with stakeholders of the ESCR project, and a meeting with the City agencies involved in the ESCR project.

No additional or new investigations were carried out for this report. This report synthesizes collected information regarding effects the Preferred Alternative may have upon the community in the project area during and after its construction and how the Preferred Alternative compares to other design alternatives.

The findings and opinions collected in this document will be delivered to the Manhattan Borough President’s Office

2 Environmental Review Process and Design Alternatives

2.1 Introduction

This chapter summarizes the environmental review process and the design alternatives for the ESCR project.

On October 29, 2012, Hurricane Sandy devastated New York City. Forty-three city residents lost their lives, 1.1 million children were unable to attend school for a week, nearly two million people lost power, and 6,500 patients were evacuated from hospitals and nursing homes in the flood zone. Economic losses totaled $19 billion with Lower Manhattan severely impacted by flooding. Critical infrastructure was stalled disrupting the lives of City residents and the smooth functioning of City businesses. Several hospitals were affected, including the Bellevue Hospital, the only State-designated regional trauma center in lower Manhattan, the Veterans Affairs New York Harbor Hospital, and the Downtown Hospital.

The impacts of Hurricane Sandy spurred initiatives for installing or improving storm protection infrastructure for future storm events. The U.S. Department of Housing and Urban Development (HUD) launched the Rebuild by Design Hurricane Sandy Design Competition, and subsequently awarded $338 million of Community Development Block Grant-Disaster Recovery (CDBG-DR) funds from HUD for the implementation of the winning proposal for Lower Manhattan titled “The BIG U.” The East Side Coastal Resiliency (ESCR) Project is the first of three phases in The BIG U design. The ESCR project will build coastal protection along the east side of Manhattan, stretching form Montgomery Street to East 25th Street. The ESCR Project proposed cost is $1.45 billion. The $338 million of CDBG-DR funds from HUD are to be directed to the ESCR project and will be distributed through the New York City Office of Management and Budget (NYC OMB).

According to the Federal Emergency Management Agency (FEMA) Digital Flood Insurance Rate Map (DFIRM) ID 360497, the proposed ESCR project is located within the 100-year floodplain, designated as Zone AE, as well as the 500-year floodplain, designated as Zone X. The Base Flood Elevation (BFE) is 10 feet (NGVD 1929). The proposed project area includes approximately 78 acres of the 100-year floodplain. Figure 1 depicts the 100-year floodplain for 2050.

The proposed ESCR project is a FEMA-accredited flood protection system. It includes installing floodwalls and closure structures, adding parallel conveyance pipes for drainage management, and raising certain portions of East River Park by 8 or 9 feet. In addition, the ESCR Project proposes to improve open spaces and enhance public access to the waterfront.

The ESCR Project’s FEIS states four principal objectives for the design, formulated in the FEIS Executive Summary as[1]:

- “Provide a reliable coastal flood protection system against the design storm event for the protected area;
- Improve access to, and enhance open space resources along, the waterfront, including East River Park and Stuyvesant Cove Park;

[1] https://www1.nyc.gov/assets/escr/downloads/pdf/FEIS/ESCR-EIS-Chapter-0.0-Executive-Summary.pdf

- Respond quickly to the urgent need for increased flood protection and resiliency, particularly for the communities that have a large concentration of residents in affordable and public housing units along the proposed project area; and
- Achieve implementation milestones and comply with conditions attached to funding allocations as established by HUD, including scheduling milestones."

Figure 1: Future (2050) 1% annual exceedance probability floodplain. Source: NYC Flood Hazard Mapper. *http://dcp.maps.arcgis.com/apps/webappviewer/index.html?id=1c37d271fba14163bbb520517153d6d5*

2.2 Environmental Review Process and Framework

Under the National Environmental Policy Act (NEPA), the NYC OMB is the entity responsible for the grant funds and is the lead agency overseeing the environmental review for the ESCR Project. In addition, the NYC Department of Parks & Recreation (NYC Parks) is the lead agency for the environmental review under the New York State Environmental Quality Review Act (SEQRA) and the NYC Environmental Quality Review (CEQR). Through the combined NEPA, SEQRA, and CEQR processes, the lead agencies of NYC OMB and NYC Parks determined the proposed project has the potential to result in significant adverse environmental effects, thus determining the need for an EIS.

The DEIS was released on April 5, 2019. The publication of the DEIS was followed by a public hearing on July 31, 2019 and a public comment period that was extended to August 30, 2019. After the public comment period closed, the FEIS was prepared which addressed substantive comments and concerns resulting from the DEIS. The FEIS was released on September 13, 2019 with a 30-day public comment period ending on October 15, 2019. The FEIS includes information on both short-term (construction) and long-term impacts of each of the five design alternatives for the ESCR Project, including Design Alternative 1, the no-action alternative.

After 45 days from the release of the FEIS, the NYC OMB will prepare a Record of Decision that will describe the proposed project's design, its environmental impacts and mitigation of those impacts. NYC Parks will prepare a Statement of Findings to communicate their review of the impacts, mitigation measures, and design alternatives in the FEIS. After the closure of the environmental review process, the NYC OMB may proceed with the release of the federal CDBG-DR federal grant funds from HUD.

2.3 Project Areas

The ESCR Project focuses on district parcels that lie within the FEMA 100-year special flood hazard area (SFHA), as well as those projected to be within the 100-year SFHA in 2050, with the 90th percentile projection for sea level rise. The future 100-year SFHA includes portions of the Lower East Side and East Village neighborhoods, Stuyvesant Town, Peter Cooper Village, John V. Lindsay East River Park (East River Park) and Stuyvesant Cove Park. The FEIS describes the design alternatives for the ESCR Project in two project areas within Community Boards 3 and 6 (CB3 and CB6):

- Project Area One: bounded to the south by Montgomery Street and bounded to the north by the north end of East River Park at about East 13th Street. The area consists primarily of East River Park, the Franklin Delano Roosevelt East River Drive (FDR Drive) right-of-way, a portion of Pier 42, Corlears Hook Park, the East Houston Street overpass, and four existing pedestrian bridges across the FDR Drive to East River Park (Corlears Hook, Delancey Street, East 6th Street and East 10th Street Bridges); and
- Project Area Two: bounded to the south by East 13th Street and bounded to the north by East 25th Street. The project area includes the FDR Drive right-of-way, the Con Edison Complex, Captain Patrick J. Brown Walk Murphy Brothers Playground, Stuyvesant Cove Park, Asser Levy Recreation Center and Playground, the Veterans Affairs (VA) Medical Center, in-street

segments along East 20th Street, East 25th Street, and segments along and under the FDR Drive.

Figure 2: Project areas. Project Area One indicated in blue and Project Area Two indicated in brown. Source: FEIS.

2.4 Summary of the Design Alternatives

The City has considered the design alternatives and mitigation measures to be taken to minimize adverse effects on the floodplain and wetlands and to restore and preserve the natural, beneficial values they offer, as described in the FEIS Notice of Completion[2] and summarized in Appendix A.

Alternatives are compared with a no-action alternative which assumes that no new comprehensive coastal protection system is installed in the proposed project area. Under the no-action alternative, the neighborhoods within the project area would remain at risk to coastal flooding during design storm events.

This section provides a description of Alternatives 3 and 4 only. Alternative 4 is the "Preferred Alternative" as proposed by the City. The Preferred Alternative best resembles (but is different from) the original plan that was developed in the Rebuild by Design / Big U process. Table 1 lists the major differences between Alternatives 3 and 4.

Design Alternative 4 (Preferred Alternative) – Flood Protection System with a Raised East River Park

Design alternative 4 proposes moving the line of flood protection further into East River Park, thereby protecting both the community and the park from design storm events and increased tidal inundation resulting from sea level rise. Figure 3 gives an overview of design alternative 4; Figure 4 illustrates in a cross section how the park would be raised. Design alternative 4 would raise the majority of East River Park. This plan would reduce the length of wall between the community and the waterfront to provide for enhanced neighborhood connectivity and integration. Between the park amphitheater and East 13th Street, the park would be raised by approximately eight feet, with

[2] https://www1.nyc.gov/assets/escr/downloads/pdf/Notice-of-Completion-Signed-09-12-2019.pdf

the floodwall installed below grade. The park's underground water and drainage infrastructure, bulkhead and esplanade, and existing park structures and recreational features, including the amphitheater, track facility and tennis house, would be reconstructed as part of the raised park. Relocation of two existing embayments along the East River Park esplanade is also proposed under this plan to facilitate direct connection to the water from the park. This alternative would include drainage components to reduce the risk of interior flooding and construction of the foundations for the shared-use flyover bridge to address the narrowed pathway (pinch point) near the Con Edison facility between East 13th Street and East 15th Street, substantially improving the City's greenway network and north-south connectivity in the project area. It would also include reconstruction of 10 outfalls located along the park shoreline that discharge to the East River, as well as wastewater and water supply piping and associated features such as manholes and regulators.

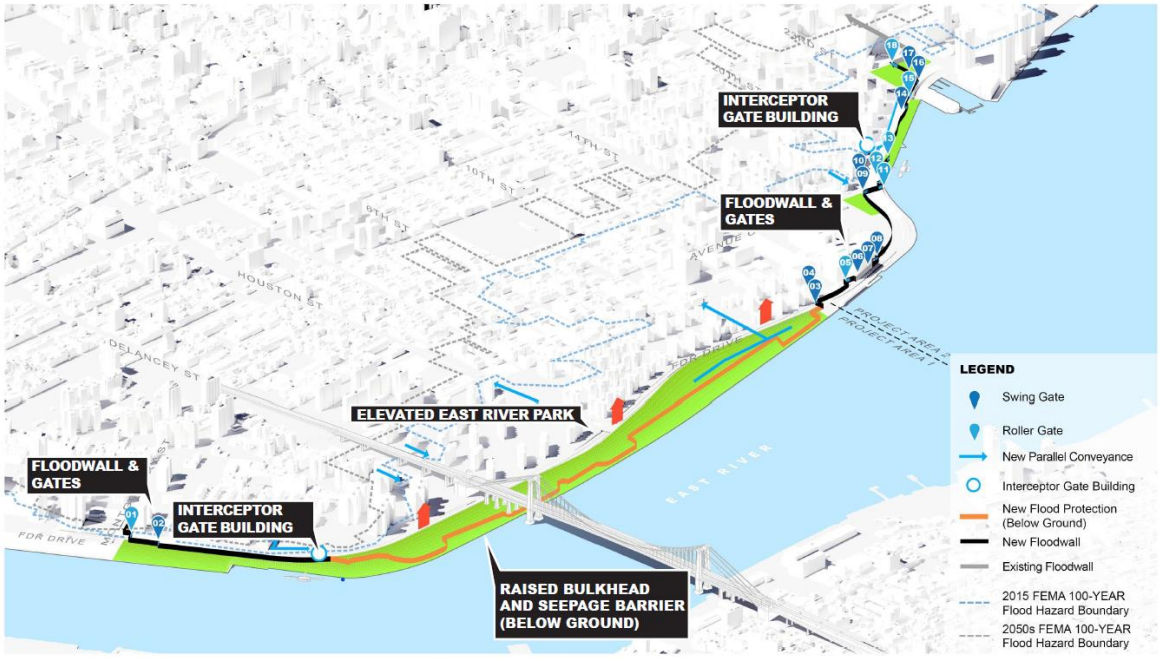


Figure 3: Design alternative 4: Integrated flood protection and interior drainage system. Source: East Side Coastal Resiliency Project Briefing with Deltares. Manhattan Borough President's Office, September 13, 2019.

Design Alternative 3: Flood Protection System on the West Side of East River Park – Enhanced Park & Access Alternative

Design alternative 3 provides flood protection using a combination of floodwalls, levees, and closure structures. The line of protection would generally be located on the western side of East River Park in a portion of the project area, and the neighborhoods to the west of this line would be protected from the design storm event. Under this alternative, there would be extensive use of berms and other earthwork in association with the flood protection along the FDR Drive to provide for more integrated access, soften the visual effect of the floodwall on park users, and introduce new types of park experiences. Figure 4 illustrates in a cross section how the berms and earthwork would be developed. The landscape would generally gradually slope down from high points along the FDR Drive towards the existing at-grade esplanade at the water's edge. Due to the extent of the construction of the flood protection system, this alternative would include a more extensive

reconfiguration and reconstruction of the bulk of East River Park and its programming, including landscapes, recreational fields, playgrounds, and amenities. Even with these East River Park enhancements, the park itself would not be protected from the design storm event. This alternative would include drainage components to reduce the risk of interior flooding and the shared-use flyover bridge to address the Con Edison pinch point.

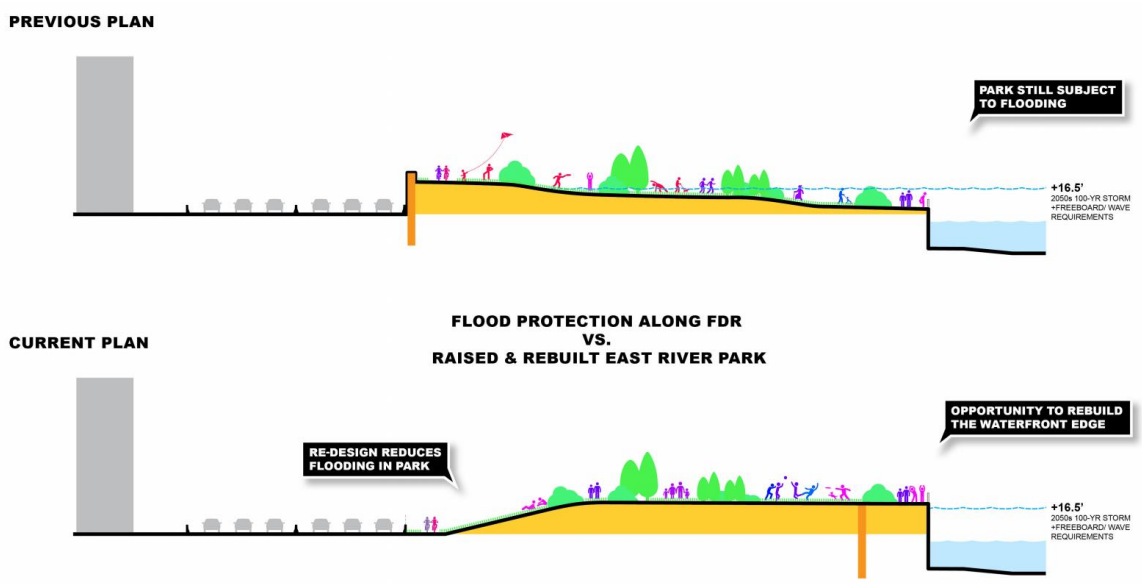


Figure 4: Schematic cross section illustrating the difference between Alternative 3 ("Previous Plan") and Alternative 4 ("Current Plan"). Source: Interactive Community Engagement Meeting, Monday, December 10, 2018, Gouverneur Health Auditorium.

Table 1: Schematic overview of design components for Alternatives 3 and 4

	Design Alternative 3	**Design Alternative 4**
Construction Duration	5 years.	3.5 years. Storm protection in place by hurricane season 2023.
Duration of East River Park Closure	Park closure for 5 years.	Park closure for 3.5 years, including esplanade due to reconstruction.
Construction Risk	- Proximity to FDR Drive requires working within roadway closure hours impacting worker productivity rate, increasing construction timeline. - Construction adjacent to Con Edison live transmission lines.	- Construction timeline risks mitigated with ability to stage and execute within the park. - Reduces construction adjacent to Con Edison live transmission lines.
Construction Methods	- Pile driving and floodwall construction along FDR Drive near residential buildings, including NYCHA, requiring long durations of overnight work and lane closures.	- Water-side construction of esplanade and waterfront structures. - Pile driving of flood protection within the park, away from residential units.

	Design Alternative 3	Design Alternative 4
	- Truck delivery of equipment, landscape and park building materials. - Pedestrian bridge construction requires short-term FDR Drive closures. - Interior drainage construction in roadways and right-of-way.	- Pile driving and floodwall construction south and north of East River Park remain. - Barge delivery reduces truck delivery of equipment and materials. - Pedestrian bridge construction requires short-term FDR Drive closures. - Interior drainage construction in roadways and right-of-way.
Cost	$1.2B HUD: $338M	$1.45B HUD: $338M
Park Resiliency	- Portions of the park remain in the current and future 100-year floodplain, with remaining trees within floodplain at risk due to threat of saltwater inundation. - Esplanade exposed to daily tidal flooding risk due to sea level rise by end of century. Bulkhead would need to be fixed within next decade requiring future park closures.	- Park raised above the current and future 100-year floodplain, including sports fields, playgrounds, and comfort stations. - Bulkhead is reconstructed and elevated, avoiding future park closures; esplanade and park ecology not at risk of daily tidal flooding due to sea level rise.
Level of Protection	- Neighborhood: 100-year coastal storm surge + 30” SLR (2050s) + wave action and freeboard (16.5 ft NAVD88). - East River Park: remains largely in floodplain.	- Neighborhood & East River Park: 100-year coastal storm surge + 30” SLR (2050s)+ wave action and freeboard (16.5 ft NAVD88)

Improved Park Access	- Bridge reconstruction:
	  o Delancey Street Bridge
	  o East 10th Street Bridge
	- Access Improvements:
	  o East Houston Street overpass landing on park side
		- Bridge reconstruction:
		  o Delancey Street Bridge
		  o East 10th Street Bridge
		  o Corlears Hook Bridge
		- Access Improvements:
		  o East Houston Street overpass landing on park side

Impact to Trees Across Entire Project Area	776 trees removed 1,180 trees planted Remaining trees stay in floodplain; at risk to future saltwater inundation.	981 trees removed 1,815 trees planted All trees will be out of the floodplain; not subject to saltwater inundation.
East River Park Drainage	Partial reconstruction of drainage system within the park.	Full reconstruction of drainage system and reconstruction of sewer outfalls within the park.
Flyover Bridge	Fully funded, with key structural elements constructed in ESCR program.	Fully funded, with key structural elements constructed in ESCR program.

	Design Alternative 3	Design Alternative 4
Direct Waterfront Access (East River)	Existing esplanade remains as is, needs future repairs.	Reconstruction of esplanade, including relocation of embayments with direct waterfront access.
Passive Recreation	Reimagined passive spaces.	Reimagined with additional passive spaces along the waterfront.

2.5 FEIS: Environmental Impacts of Design Alternatives

The FEIS[3] describes the environmental impacts of all alternatives. These include short-term and long-term effects on open space, urban design and visual resources, natural resources, hazardous materials, water and sewer infrastructure, and additionally short-term impacts due to construction on transportation, air quality, noise and vibration, and public health. Appendix A provides a summarizing description of the environmental impacts for Design Alternatives 3 and 4. Table 2 compares Alternative 4 and Alternative 3.

Table 2: Environmental impacts compared for Alternative 4 (Preferred Alternative) and Design Alternative 3. Source: FEIS.

	Design Alternative 3 Environmental Impacts	Design Alternative 4 Environmental Impacts
Open Space	No significant adverse effects.	No significant adverse effects.
Urban Design and Visual Resources	Significant adverse effects of views of the East River to be potentially be blocked Grand Street, Cherry Street, East 6th Street, on East 10th Street, and from within Bernard Baruch, Lillian Wald, and Jacob Riis Houses, and portions of the FDR Drive.	Significant adverse effects of views of the East River to be potentially be blocked on Grand Street, East 6th Street, on East 10th Street, and from within Bernard Baruch, Lillian Wald, and Jacob Riis Houses.
Natural Resources	- Removal of 776 trees and planting of new trees, with a net increase of 325 trees over the existing conditions, and with 563 to remain in FEMA flood zone. - Possible adverse effects to unvegetated littoral zone tidal wetlands that are foraging habitats for fish.	- Removal of 981 trees and planting of new trees, with a net increase of 745 trees over the existing conditions, and with 348 to remain in FEMA flood zone. - Possible adverse effects to unvegetated littoral zone tidal wetlands that are foraging habitats for fish.
Hazardous Materials	No significant adverse effects with proper mitigation. Has the potential for disturbing hazardous materials in existing structures	No significant adverse effects with proper mitigation. Has the potential to disturb hazardous materials in existing structures

[3] *see https://www1.nyc.gov/site/escr/progress/environmental-review.page for all public documents*

	and subsurface during demolition and excavation.	and subsurface during demolition and excavation.
Water and Sewer Infrastructure	No significant adverse effects, however would require more floodproofing of existing infrastructure as the sewer system within East River Park will not be reconstructed.	No significant adverse effects.
Construction – Open Space	Temporary adverse effects with the displacement of recreational facilities and open space amenities during 5-year construction period.	Temporary adverse effects with the displacement of recreational facilities and open space amenities during the 3.5-year construction period.
Construction – Urban Design and Visual Resources	Temporary adverse visual effects upon the pedestrian experience due to construction barriers and fences over the 5-year period.	Temporary adverse visual effects upon the pedestrian experience due to construction barriers and fences over the 3.5-year period.
Construction – Natural Resources	No significant adverse impacts as there is less in-water work and removal of trees compared to Alternative 4.	- Potential adverse impacts upon two identified endangered species, the shortnose sturgeon and Atlantic sturgeon. - Construction would temporarily affect littoral zone tidal wetlands and terrestrial resources due to the removal of trees.
Construction – Hazardous Materials	Potential to disturb subsurface hazardous materials in existing structures and the subsurface during demolition and excavation activities but could be avoided with proper mitigation. Adverse effects would be less than Alternative 4.	Potential to disturb subsurface hazardous materials in existing structures and the subsurface during demolition and excavation activities but could be avoided with proper mitigation.
Construction – Water and Sewer Infrastructure	No significant adverse effects.	No significant adverse effects.
Construction – Transportation	- Adverse impacts upon traffic, exceeding the *CEQR Technical Manual* threshold of 50 vehicle trips with a potential to generate 153 Passenger Car Equivalents (PCEs) during the 6 to 7 a.m. peak hour and 85 PCEs during the 3 to 4 p.m. peak hour; - Rerouting of the East River bikeway/walkway would create temporary significant adverse effects	- Adverse impacts upon traffic, exceeding the *CEQR Technical Manual* threshold of 50 vehicle trips with a potential to generate 251 Passenger Car Equivalents (PCEs) during the 6 to 7 a.m. peak hour and 131 PCEs during the 3 to 4 p.m. peak hour; - Potential impact of a parking shortfall of 35 spaces and the displacement of 50 off-street parking spaces in the

	that would necessitate a rerouting plan during the 5-year period of construction.	East River Housing Corporation parking lot; - Rerouting of the East River bikeway/walkway would create temporary significant adverse effects that would necessitate a rerouting plan during the 3.5-year period of construction.
Construction – Air Quality	No significant adverse effects.	No significant adverse effects.
Construction – Noise and Vibration	- Significant adverse noise effects are predicted to affect multiple addresses near the flood protection alignment and the reconstructed pedestrian bridges. - Vibration would not result in exceedances of the acceptable limit, including for historic structures.	- Significant adverse noise effects are predicted to affect multiple addresses near the flood protection alignment and the reconstructed pedestrian bridges. - Maximum noise levels at residences to nearest floodwall construction within the park would be slightly lower than Alternative 3, because pile driving would occur further from the residences. - Vibration would not result in exceedances of the acceptable limit, including for historic structures.
Construction – Public Health	Potential for significant adverse impacts during construction on noise pollution, but overall no significant adverse effects on public health.	Potential for significant adverse impacts during construction on noise pollution, but overall no significant adverse effects on public health.

2.6 Uniform Land Use Review Procedure (ULURP) Process

NYC Parks and OMB, along with the NYC Department of Design and Construction (DDC), collectively developed conceptual designs aimed at fulfilling the principal objectives listed for this project and which included the public feedback collected during the scoping process. The chosen conceptual design carried forth through the ULURP application process was Design Alternative 4, or the Preferred Alternative.

To facilitate the ESCR Project, the NYC Department of Transportation (DOT), the NYC Department of Citywide Administrative Services (DCAS), the NYC Department of Environmental Protection (DEP), and the NYC Department of Small Business Services (SBS) collectively sought two approvals through the Uniform Land Use Review Procedure (ULURP) for the acquisition of eight easements on non-City owned property and a text amendment to the NYC Zoning Resolution (ZR) § 62-50 (“General Requirements for Visual Corridors and Waterfront Public Access Areas”) and § 62-60 (“Design Requirements for Waterfront Public Access Areas”). The two ULURP Applications (C190357PQM and N190356ZRM) were submitted to the offices listed in

Table 3 for approval.

Table 3: ULURP Application Process Results for C190357PQM and N190356ZRM

Office	Vote Date	Result of Vote
CB 3	March 27, 2018	Not to support
CB 6	April 11, 2018	Not to support
CB 3	June 28, 2019	Approval with conditions
CB 6	June 12, 2019	Approval with conditions
Manhattan Borough Board	June 23, 2019	Approval with conditions
Manhattan Borough President	July 30, 2019	Approval with conditions
City Planning Commission	September 23, 2019	Approval
City Council	To be decided	

Manhattan Community Boards 3 and 6, and the Manhattan Borough Board approved the ULURP applications with conditions, each describing the required mitigations. The mitigations to be added to the ESCR Project are described in Appendix A.

3 Stakeholder Interviews

3.1 Introduction

Representatives of residents, interest groups, community boards, and government officials from the City, State and Federal levels were interviewed in September 2019. Appendix B provides a complete list of interviewees. The interviews were open conversations in which these representatives brought forward their views on all aspects they deemed relevant to the project and the project development. Representatives were interviewed from:

- Community Boards 3 and 6;
- City Council;
- State Senate and State Assembly;
- Congressional Representatives' Offices;
- Co-op Housing Boards and City Housing Authority Tenant Association Presidents;
- Local neighborhoods and businesses;
- Interest Groups;
- Action Groups; and
- Sports Groups.

This chapter reports the views and concerns of interviewed stakeholders.

A general concern is that since mid-2018 the process of stakeholder engagement has neglected community perspectives. This has resulted in a lack of ownership of the preferred alternative and a lack of understanding of how the preferred alternative is a logical further development of the original plan that was developed previously in the Rebuild by Design / Big U process. In general, there is skepticism regarding the preferred alternative and a lack of trust in the successful execution of a project of this magnitude.

Technical issues discussed with the interviewees related to flood protection, design, natural resources and biodiversity, execution time and project phasing, air quality and dust, noise and vibration, hazardous waste materials, and soil settlement and fill compaction. The next sections form a compilation of the concerns that were raised around these technical aspects of the project.

3.2 Project History and Community Engagement

All the interviewees agreed flood protection is needed. Flooding leads to damage of property and loss of services. The vast majority of the people interviewed were very much in favor of the City's initiative for flood reduction.

However, nearly all interviewees expressed a lack of trust in the City because of the way the Preferred Alternative was brought forward. Several interviewees indicated they are upset about the original plan (i.e. the Rebuild by Design / Big U plan) being changed. Many interviewees expressed concern about the way the plan was communicated indicating there had been years of engagement

with the City on this topic, yet the City released a different plan than had been discussed. As Council Member Margaret Chin's office explained, "They never made the case. The choice was made for us."

Another often-expressed issue was the community had not been adequately consulted since the announcement of the Preferred Alternative in 2018. State Senator Brad Hoylman commented, "Big projects require buy-in from the public, and confidence."

3.3 Reliable Coastal Flood Protection

Interviewees expressed concerns about the risk of flooding once the project has been executed and the new flood protection is in place. For example, there is concern the East River Park and the flood wall will only be built to 2050 standards.

Several stakeholders raised the point that it is not only about flooding from sea level rise and storm surges, but also from heavy rainfall storms. They questioned whether the new urban drainage would be sufficient to prevent urban flooding.

Several stakeholders also raised concerns about the risk of water overtopping or overflowing the raised park and causing flooding in the "bathtubs" behind the park in the adjacent residential areas. In addition, at the northern project boundary people are concerned whether flooding will take place north of East 25th Street, where the proposed barrier ends, thus also creating "bathtubs" of flood water. One interviewee asked whether one plan will reduce risk more than the other.

Another question asked whether the flood wall plus the rolling gate at the corner of Montgomery St. at the southern boundary of the project is the best technology currently available for flood protection. In addition, there was a lack of clarity how the flood wall and rolling gate would connect to the anticipated Two Bridges Project south of ESCR.

Groundwater and Basement Flooding – Several people from the project area reported flooded basements after mild rainfall. Some voiced concern that the raised park and the flood wall will exacerbate the effect.

East Village Community Coalition (EVCC) reported that after rainfall, their sewers are blocked, which causes their basements to flood. The raised park should therefore come with additional drainage. The group also presented a map from 1864 that displays the neighborhood of East Village, which is located in a former low-lying marshland area with streams running down to East River (see Figure 5).

One of these former streams is located at East 8th and East 9th Streets where there are sewers that back up with heavy rainfall. Another former stream ran through the current Tompkins Square Park and Saint Brigid's school out to the East River. The group stated that as little as an inch of rain can flood basements on East 9th Street. Not only was the area previously a wetland, but the East River would cross Avenue A at high tide before peat, clay, and fill was used to extend land eastward.

According to EVCC, almost every building east of Tompkins Square Park has a sump pump. The group is concerned that those critical aspects of geology were not included in the plan and that the envisioned parallel conveyances will be inadequate to solve the problem of flooding.

Even though the primary goal of the ESCR Project is to create flood protection from catastrophic events like Hurricane Sandy, EVCC is concerned that the floodwall proposed in Alternative 4 may exacerbate basement flooding by blocking rainfall from dispersing toward the East River.

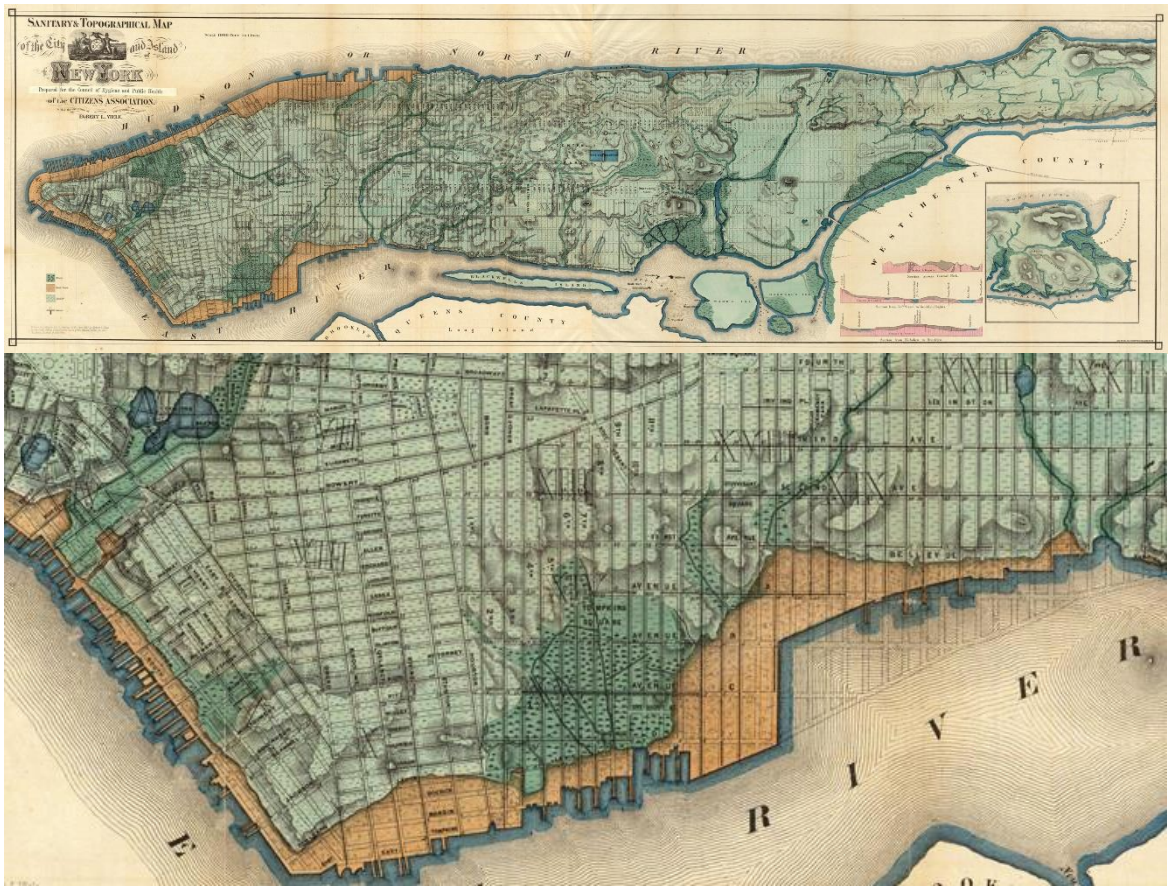


Figure 5: Historical map of the Lower East Side, showing the low-lying marshland area with small streams. From: Egbert L. Viele, "Sanitary & Topographical Map of the City and Island of New York", 1865. David Rumsey Map Collection. Source: Jared Farmer. New York City in 10½ Maps. https://jaredfarmer.net

3.4 Improved Access and Enhanced Open Space Resources

Design – Congresswoman Maloney's office believes both Alternative 3 and Alternative 4 have their benefits. The congresswoman is supportive of elements of Alternative 3 but prefers the plan that best protects the community. However, Council Member Margaret Chin's office stated that "there is very little understanding about why Alternative 4 is the best alternative. There is no rationale for why this is the best option and how they compare."

According to Council Member Keith Powers there is little discussion about the different alternatives in the district from 14th Street north. Council Member Keith Powers stated: “At the end of the day Alternative 4 seems to be the long-term better option making the park part of the solution rather than encasing it in a wall,” because in the case of Alternative 3 a new flood event would make the park inoperable for a period of time.

Powers also stated: “A positive aspect of the design of Alternative 4 over Alternative 3 may be that the Alternative 4 sloping berm may absorb noise from FDR Drive whereas the Alternative 3 wall may reflect the noise into the community.”

The interviewed sports teams (NY Giants Youth Baseball and NYC Lions) indicated they expect the plan for the new fields will result in better drainage than the current state. Currently they have to pump the rain water from the fields. Alternative 3 includes partial reconstruction of drainage system within the park. Alternative 4 includes full reconstruction of drainage system and reconstruction of sewer outfalls within the park.

Residents from StuyCove Park indicated they oppose the original berm (i.e. currently in Alternative 3) because of the loss of waterfront views. They indicated the alternative that will eventually be chosen would preferably be adaptable to the future of the FDR Drive and should allow for traffic changes in the future (e.g. in a tunnel).

Transportation Alternatives (TA) thinks that the FDR Drive should not maintain the same use function. Because the FDR is 90 years old, it should be reconsidered during the construction of the park. According to TA, ‘Greendecking’ (i.e. decking and greening the cover) of FDR Drive in the original (i.e. RbD / Big U) plan was opposed by the NYC Housing Authority (NYCHA) residents because it would block sightlines from the NYCHA buildings. Ideally, the TA suggest the FDR Drive should be lowered into a tunnel after which the park could be extended into the neighborhood.

East River Park Action believes the park should not shut down, elements of the park should be preserved, and the park should be extended over the FDR Drive.

Several interviewees stated the previous (i.e. the RbD / Big U) plan was more “adaptive” in the sense that it would allow the park to be flooded and its design would work like a sponge to absorb stormwater.

Many stakeholders indicated the LES Ecology Center has been a great partner for the community and should receive more attention in the plans. A new park could potentially lead to higher visitation numbers, negatively impacting the current space that is not large enough for its current programming. East River Park has about 1.5 million visitors a year. The LES Ecology Center has over 1,000 volunteers and many visitors for its education program.

During Hurricane Sandy, the Ecology Center building was not severely damaged. However, concern was expressed that with a new raised park around it, the flow pattern and resulting damage could be significantly different. LES Ecology Center representatives explained that due to the age of the pilings, the Fire Boat House cannot be raised. During a storm it would have to be protected with sand bags.

The LES Ecology Center representatives indicated they would not be opposed to demolishing and construction a new building. They emphasized that the new building will have to be close to the water as the education programs have a close relationship with wetlands, composting, and water education. LES Ecology representatives argue the Center should become an integrated part of the design of the Park, either by reconstructing and enlarging the current facility or by building a new facility along the water in the park, possibly with elements of the old historic building.

Natural Resources and Biodiversity – One of the larger concerns for many stakeholder groups and community representatives is the destruction of the park, including the elimination of biodiversity and the removal of all trees.

It is clear that while many trees succumbed to salt damage after Hurricane Sandy, many others managed to survive. Many people therefore believe the current parkland can continue to exist and it is outrageous to destroy existing mature trees.

The expressed concern is that it would take decades before new trees could create a canopy cover and before the park's biodiversity to return. The stakeholders asked "How do we mitigate the loss of biodiversity or prepare for species to return after the park's reconstruction?" They stated that there is little information available on these issues from the publicly-available FEIS documents. In addition, little is known about the soil types. Stakeholders expressed doubt that the soil used to raise the park in the Preferred Alternative plan would be suitable for growing the planned 1,400 3-inch saplings. Similarly, residents were concerned there was no method to put in place the possible additional two feet of fill for increased flood proofing in the future without having to demolish all the vegetation in the park.

3.5 Environmental Effects During Construction

Numerous groups expressed concerns about the way the project will impact people's lives. People raised questions about the proposed mitigation of the adverse effects of noise, dust, soil contamination, and transportation, questioning whether or not the mitigations will be sufficient. For example, even if FDR Drive will remain open (as is proposed in Alternative 4), the residents expressed fear that there will still be an increase in local traffic issues due to the hundreds of construction workers who will drive into the project area. People fear the noise and debris will affect their lives, they will experience sleep disturbance and respiratory issues. People expressed fear that their health is at stake and the health impacts will only become apparent after the damage is done. As one resident said: "We will suffer from the construction: noise, no waterfront, traffic, the area is going to be dug up again."

Many interviewees are skeptical about the project because they think it is too ambitious to execute in 3.5 years. People expressed concern the project will not be finished before the next storm. Many indicated they are concerned the project will take much more time to execute than planned. Council Member Margaret Chin's office noted that, "There is broken trust about the construction time." Many community members requested the project be done in stages.

Air Quality, Dust and Hazardous Waste Materials – Air quality will be affected in all alternatives: (1) by truck traffic; (2) by construction works along FDR Drive (Alternative 3); (3) by dust from the demolition of the park; (4) by dust from raising the park with fill; and (5) transportation of fill by

barges (Alternative 4). The differences between Alternative 3 and Alternative 4 are the larger volume of fill in Alternative 4 over Alternative 3; construction along FDR Drive only in Alternative 3; and transporting the by barges in Alternative 4 and by truck in Alternative 3.

For the asthmatic population in the project area the primary issue is the air quality during the construction of the project.

Several individuals and stakeholder groups have raised concerns regarding the threshold for air quality control regulations that do not apply to vulnerable groups (e.g. elderly and young children). Another expressed concern is the fill will exacerbate the current air quality issues with additional dust. Even though regulations exist for the origin and the quality of the fill material, people are concerned the Alternative 4 design will not be safe because improper fill material will be used.

Residents indicated the barges to be used in Alternative 4 are an improvement compared to the use of trucks in Alternative 3. The large number of trucks to be stationed at the intersection of Montgomery Street was specifically mentioned as a concern, with residents stressing the importance of optimizing the logistics of trucks and barges.

Gases being released from (potentially contaminated) soils because of construction is another concern raised by the stakeholders. For example, interviewees stated that construction of the Brooklyn Bridge Park (a former brownfield) had released fumes that made people nauseous. The FEIS indicates the Con Edison sites contain contaminated soils and hazardous materials, including older, underground sewage infrastructure.

Several representatives requested monitoring of construction be carried out as an important means to be better informed and gain trust in adequate execution. Several interviewees mentioned the example of the online and real time air quality monitoring that was carried out as part of the L Train project.

Noise and Vibration – Several interviewees have expressed their concerns about the potential noise during construction, as it is expected that night-time and weekend construction works will be necessary to complete the project within 3.5 years.

When asked for their preference of either having construction works continuously (24/7) to minimize project execution time or having construction only during office hours with proportionally longer execution time, the answer was to have something in between, i.e., a balance between fast working and having a rest during part of the weekend.

3.6 Constructability and Scheduling

Construction Time – The experience from many stakeholders is projects in New York City take longer than planned, for example, because of contracting, or perhaps another storm event may delay the execution. This experience feeds suspicion and skepticism about the projected 3.5 years of construction time for Alternative 4, which several stakeholders considered unrealistic. The City's rationale for picking this plan is that the timeline is shorter, but stakeholders think the timeline is aggressive and does not seem possible.

Most of the stakeholders that were interviewed argue that the project construction should be phased. For some residents this is crucial, with them reporting “a complete shutdown of the park is unacceptable.”

Construction Phasing – Interviewees understood phasing will make project execution organizationally more complex requiring staging areas and spaces for equipment and would complicate the implementation of storm drainage and sewerage. However, they considered this option as very important in terms of the project’s execution.

Interviewees reported without phasing, 200 sports teams will need to find alternate venues. For example, the NY Giants Youth Baseball and NYC Lions stated they need phasing to bridge the long construction period, otherwise they would have to commute to Randall’s Island.

For the constituents in Project Area 2, phasing of construction in Project Area 1 would be better as well because they are also Park users, unless this would also increase the construction time in Project Area 2 (because storm drainage and sewage systems are connected).

CB3 is generally in favor of phasing the project but points out that the City should show what that would entail. Phasing at the cost of a slightly longer construction time is favorable but phasing at the cost of doubling construction time is a different matter.

All Congressional representatives, Council Members and State Senators who were interviewed, have declared themselves to be in favor of phasing of the project.

The NYCHA Tenant Association President, however, has one clear message: the project should be executed without phasing (1) to arrive at flood protection as soon as possible and (2) to minimize the exposure to air pollution within the shortest period.

Settlement of Parkland Fill – A final, urgent community concern is how long it would take for the fill to settle. Community members indicated little is known from the FEIS about the way the raised parkland will be constructed. They indicated that because the height of the fill is considerable the underlying soft soils are in some parts likely very compressible.

Flood Risk During Construction – A main concern is that the construction site will be left without flood protection for the duration of the project. It is stated that the Park absorbed a large part of the wave energy of Hurricane Sandy. Residents wondered what would happen if the Park was not there? Several stakeholders therefore stated that Interim Flood Protection Measures (IFPM) are needed during construction by way of deployable barriers or sand bags. The residents pointed out that the city has plans for deployable barriers south of the project area – and then asked why not here as well?

4 Perspective from the City

4.1 Introduction

A meeting was held with representatives from the Mayor's Office, the NYC Department of Design and Construction (DDC), NYC Parks, Manhattan Borough President's Office (MBPO), and several third-Party entities. Appendix C contains the list of attendees to this meeting. The purpose of the meeting was to hear the City's perspective on the proposed project, to share the views and concerns of the interviewees with the City, and to discuss the differences in perspective and potential ways forward.

This chapter reports the City's perspective on several aspects of the project design.

According to the City, under the Preferred Alternative, there is significant risk reduction in East River Park from flooding and inundation due to sea level rise, in contrast to Alternatives 2 and 3 where the flood protection system is aligned along the West Side of the park, and at the same time providing substantial enhancements to recreational resources. Additionally, the City believes the Preferred Alternative allows for a shorter construction duration and earlier deployment of flood protection (with completion in mid-2023) and reduces construction disruptions along FDR Drive. Increasing sea level will put East River Park at greater risk under Alternatives 2 and 3 due to more frequent flooding from common storms or high tides. Regular flooding would be avoided under Alternative 4 because the park would be elevated. The next sections elaborate on these topics based on the discussion with the City.

4.2 Reliable Coastal Flood Protection

The City states that there is no difference between Alternative 3 and Alternative 4 with respect to flood protection levels for the neighborhood. Both Alternative 3 and Alternative 4 provide flood/storm surge protection up to 16.5 ft above current sea level, which is equivalent to protecting against a 1-in-100 year storm in 2050 under a mid-level sea-level-rise projection. The City's selection of one alternative over another is therefore based on the level of environmental and community impact.

Flood Protection of the Park – one essential difference between the alternatives is Alternative 4 protects the park, while Alternative 3 allows the park to flood (see Figure 6). Installing a floodwall and elevating most of the park would protect park facilities and recreational spaces from future design storm events and sea level rise inundation.

Figure 6: Inundated area for example storm conditions, Alternative 3 (left) and Alternative 4 (right). Source: Interactive Community Engagement Meeting, Monday, December 10, 2018, Gouverneur Health Auditorium.

Reduced Overtopping – The City asserts that with Alternative 3 there would be overtopping of the berm during a 1-in-100 year storm, flooding FDR Drive and areas further inland. The City finds Alternative 4 preferable in this regard because it believes the flood barrier along the East River would reduce overtopping, and any overtopped water would flow into the East River Park rather than the FDR Drive or residences. The City indicated the effect of the design on overtopping had not yet been modelled. The City indicated not clearly communicating this potential advantage may have been an error, and generally indicated they have not communicated well with regard to their selection of Alternative 4.

Adaptability to Higher Sea Level Scenarios – The City indicated Alternative 4 allows for the addition of up to two feet of fill at some time in the future without needing to make changes to the flood barrier. With this additional two feet of fill, the project would protect against a 1-in-100 year flood event through 2100 under mid-range sea level rise projections. The City noted this possibility was an advantage of Alternative 4 over Alternative 3, because Alternative 3 cannot be easily 'upgraded' to 2100 levels. The City indicated that while adding fill would require future destruction of parts of the park the heavy use of the Park would require replacement of passive/active fields within the lifespan of the project anyway.

Rebuilding the Bulkhead – From the Parks Department's point of view on the infrastructure, rebuilding the bulkhead is important. Rebuilding the entirety of the bulkhead is accounted for in Alternative 4, but not in Alternative 3 consequently the Parks Department expressed a clear preference for Alternative 4

Sewer Improvements – City representatives preferred Alternative 4 because it will allow the City to reconstruct and upgrade the sewer lines within East River Park, including the outfalls and associated pipes that cross the park to the East River bulkhead. See the illustration in Figure 7. The City indicated they consider the current sewer infrastructure inadequate and reaching the end of its serviceable life. The "parallel conveyance" system proposed with Alternative 4 would increase the capacity of the existing combined urban drainage and sewer system, discharging rainfall and waste water from the upstream neighborhoods through the park. The sewer system inland in the neighborhood will not be reconstructed, but the section under the park will be built for current city needs.

Figure 7: Sewer reconstruction works to improve drainage in East River Park. Source: East Side Coastal Resiliency Project Briefing with City Agencies, MBPO and Deltares. Manhattan Borough President's Office, Sep 13, 2019.

Urban Flooding from Rainfall – The City representatives suggested Alternative 4 would help mitigate flooding in adjacent neighborhoods and thus they preferred Alternative 4. They explained that the parallel conveyance system would increase capacity through the park thus enabling the upstream network to work more efficiently. They also indicated urban flooding at some distance from the new infrastructure will not be mitigated. At the same time, the City confirmed the ESCR Project scope is limited to preventing surge flooding, not rainfall flooding though there may be ancillary benefits The City explained that it has its own green infrastructure program that may connect to the ESCR project thus making the possibility of this ancillary benefit more likely.

Tiebacks at the Project Boundaries – Tiebacks are flood protection structures extending inland at the project boundaries. As indicated in the FEIS, the ESCR project provides for inland flood protection for water levels up to 16.5 feet of surge above current sea level, so the tiebacks extend inland until the land reaches that elevation. The City representatives explained the ESCR design contains interceptor gates and flood walls north and south of East River Park, where the small project area does not support raising land. At Montgomery St, the ESCR flood protection "ties back" onto Montgomery Street until the land reaches 16.5 ft elevation. Across Montgomery Street, on the south side, the "Two Bridges" Coastal Resiliency Project, which is in an earlier stage of development, would continue flood protection to the Brooklyn Bridge. Though the timing of the two projects differs, the City staff indicated once both are completed flood protection would be secured with the integration of these two flood protection lines. North of the project area, the City staff explained Bellevue Hospital, a city-owned parcel of land, has its own FEMA-funded coastal resiliency project.

4.3 Improved Access and Enhanced Open Space Resources

Design – According to the City, the Preferred Alternative best achieves the important project goals of improving access and enhancing open space resources. As indicated by the City, Alternative 4 provides more usable open space than Alternative 3. Alternative 4 would also reconstruct three bridges, making them universally accessible for all park users. The City believes that accessibility to the waterfront is a paramount community concern.

According to the City, the design of Alternative 4 has been extensively improved compared to the previous design iteration (the RBD proposal), both in Project Area 1 and 2, with a multitude of new or restructured elements.

Waterfront Access – The City representatives indicated Alternative 4 improves waterfront access addressing what the City understands is a key community concern. The City representatives pointed to the embayments planned for the Park, purposely near the entrances to the Park so that visitors entering the park can step down towards the water immediately. The City explained one of the important things the community has conveyed to the them is the importance of their relationship to the water and the importance of passive space for multigenerational use. According to the City, the design of Alternative 4 ensures the park is universally accessible with no slope greater than 5% grade. For the City, it has been important to make the embayments as close as possible to the landings and bridges so that the elderly and families could access the waterfront more easily. Both the Houston and Corlears landings and bridges have been redesigned to meet this goal.

Figure 8: Waterfront open spaces and access: improving pedestrian bridge connections. Source: Interactive Community Engagement Meeting, Monday, December 10, 2018, Gouverneur Health Auditorium.

Natural Resources and Biodiversity – According to the City, the Preferred Alternative's landscaping plan provides greater park resiliency through a design that can withstand a changing climate and consideration of species diversity, habitat, salt spray, wind, maintenance, and care. The City prefers Alternative 4 because they consider elevating the majority of the park will result in the park being more resistant to salt spray exposure and improve resiliency and post-storm functionality over the long term.

The City voiced that they know residents are attached to the existing trees, however a number of the original trees (planted in 1939 when the park was built) are at the end of their lifespans. Also,

they indicated the tree species that were chosen when the park was built are not species which can tolerate consistent salt water inundation. Figure 9 shows a map of East River Park in 2012 before Sandy and then three years later. The City found the impact of salt water inundation caused the loss of 260 trees in East River Park. The City's analysis shows a correlation between the elevation of the trees and the damage the trees sustained. Consequently, the City prefers Alternative 4 which raises the height of the park and thus protects the trees in the long term.

Figure 9: Post-Sandy Canopy change. Source: East Side Coastal Resiliency Project Briefing with City Agencies, MBPO and Deltares. Manhattan Borough President's Office, Sep 13, 2019.

Similarly, the City representatives pointed out that the London Plane trees in the park were declining and referenced a previous study which said that London Plane trees cannot handle salt water inundation. A substantial percentage of the trees in the current park are London Plane trees. The City believes that those trees will continue to decline as climate changes, and the City therefore intends to replace these trees. In the current design of Alternative 4, many trees will be removed, but they will be replaced with tree species that are able to withstand the effects of climate change. In Alternative 3, many Plane trees will be left in place, but they may need to be replaced due to natural decline and salt water intrusion.

The size of the trees is also an important issue, as many stakeholders point out that replacing large old trees with tiny saplings is very unattractive. The City indicated three-inch caliper trees will be planted. The City prefers to put in smaller trees and have them adapt and grow quickly. The City has prepared a diverse species list, including species that can handle salt inundation and more extreme weather conditions resulting from climate change (wind, heat, harsh winters). These trees will be used for all replacement trees whether in Alternative 3 or 4.

Stakeholders prefer bigger trees (like in Hudson River Park) and the City is prepared to discuss this with the Parks Department. However, City staff explained when you transplant a big tree, it stunts its growth. The City indicated Brooklyn Bridge Park and Governor's Island are good examples of how small trees can be successful. In those locations, one-inch trees were planted

that have grown very quickly. For any alternative, the ESCR project plans to plant some faster-growing trees and some trees that grow more slowly.

In order to encourage natural habitat for diverse species, the City looks at group plantings and intends to create groves, which will create a woodland effect. The East River Park community is very interested in ecology and the City indicated they would be happy to discuss trees and pollinators with the community. For any project, the City agencies involved in the project work closely with the Parks Department, both the forestry division and capital to select trees that are adaptable to climate change.

With both Alternatives 3 and 4, the City indicated the project plan intends to create different layers of landscape with different plantings including trees, understory trees, and shrubs. The plan also intends to create thresholds with flowering trees as you enter the park. The FEIS states that for Alternative 4 approximately 981 trees are proposed to be removed and more trees planted, resulting in a net increase of 745 trees over the existing conditions, and with 348 trees remaining in the floodplain at risk of future saltwater inundation. For Alternative 3 approximately 776 trees are proposed to be removed and more trees planted, resulting in a net increase of 325 trees over the existing conditions, and with 563 trees remaining in the floodplain at risk of future saltwater inundation.

LES Ecology Center – In an effort to address concerns expressed to the City regarding the LES Ecology center resulting from the implementation of Alternative 4, the City stated it is conducting an engineering study to investigate the possible change in flooding to the LES and other issues concerning the LES Fire Boat House. The City indicated they would also consider constructing a new headquarters for LES Ecology Center or constructing a new headquarters and maintaining the Fire Boat House for use by LES Ecology Center.

4.4 Environmental Impact During Construction

Air Quality, Dust and Hazardous Waste Materials – The City understands many stakeholders are concerned about air quality irrespective of the design which is chosen. The City representatives indicated their construction plans include air quality protection and they intend to determine the best way to communicate those protections with the community and have transparent air quality monitoring.

Noise and Vibration – In comparing the noise impacts between Alternative 3 and 4, the City representatives indicated noise impacts in Alternative 4 are limited to the areas north and south of East River Park, while Alternative 3 has noise impacts along the length of the project area.

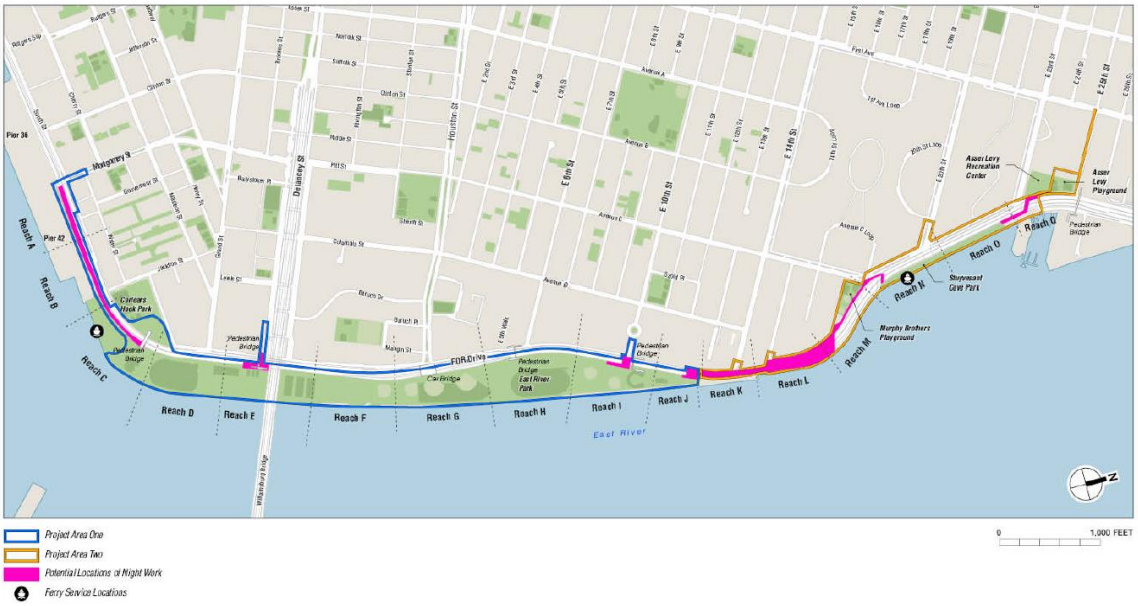


Figure 10: Neighborhood noise impacts. Source: East Side Coastal Resiliency Project Briefing with City Agencies, MBPO and Deltares. Manhattan Borough President's Office, Sep 13, 2019.

4.5 Constructability and Scheduling

Constructability – According to the City, constructability is an issue that has determined the course of the project. The City indicated the original plan developed under RBD was a broad consideration of the project goals, including interventions well outside the park. When the City analyzed the RBD plan in greater detail, several constructability issues arose. Even though several stakeholders regard Alternative 4 as a new plan, the City considers Alternative 4 to be a development of the previous (RBD) plan, resulting from new insights gained during the development of Alternative 3. While the City considers that it did a poor job communicating the development from Alternative 3 to Alternative 4, the insights gained during the development of Alternative 3 necessitated the design of Alternative 4.

The City states that according to the 'value engineering report' (an internal report produced by the City) construction of Alternative 3 would be very difficult. Constructability issues come up regarding staging on the FDR in Alternative 3. Overnight construction would be necessary, which would mean that valuable time would be lost setting-up/demobilizing nightly. Noise issues to the surrounding community would be more acute. In addition, an issue with Alternative 3 is that Consolidated Edison (ConEd) has not yet developed a full plan for what would have to happen to the ConEd lines under the proposed berm. However, ConEd believed that Alternative 3 would have required serious reconstruction of the ConEd line along the length of the Project area.

In terms of constructability, the City prefers Alternative 4 as it minimizes disruption to FDR drive. The 'value engineering report' leads to the conclusion that Alternative 4 can be completed faster and with a greater degree of certainty. (This value engineering report is not publicly available.)

Construction Time – The City prefers Alternative 4, because under Alternative 4 East River Park would be constructed in 3.5 years and completed in 2023, one year ahead of the scheduled delivery date for Alternative 3.

Construction Phasing – According to the City, the sewer line and fill are the critical issues that complicate phasing of the project. As First Deputy Commissioner Jamie Torres Springer stated, "There is a compelling need to mobilize and build the project in order to use federal dollars and to complete the project as early as possible to address climate risk. If we were not to close East River Park, we would not be able to maintain the safety of those using the park due to the amount of truck activity and the amount of work that has to be done. There are two drivers that require us to do the work all at once. One driver is that the sewer system is immensely time consuming to build so it is difficult to work on separate portions and get them all completed. The second driver is the fill and the need to get the fill in. We are working to see how quickly we can get portions finished and re-opened and if we can keep some portions open for the first year of the project and still meet our construction goals. We will have answers before the approval of the project, but we are still working on it."

For Alternative 3 the Park would also have to be closed. The City only understood late in the development of Alternative 3 that it would require the closure of the entirety of East River Park. The City indicated this information was not properly communicated.

Interim recreation – The City has committed a series of resources across the Lower East Side and in Community Board 6 to improve access to open space for the duration of construction.

Deputy Commissioner Alyssa Cobb Konon mentioned that, "We looked at a suite of upgrades to existing open spaces, creating new open spaces, doing additional tree planting in the community, and creating rain gardens or bioswales. We have also been looking at the assets across our portfolio within the Lower East Side and Community Board 6. We are buying solar lights to expand playing time at playing fields. We have met with all of the leagues and talked with them about their needs. Some of them are willing to travel and some want to stay local. We are looking to honor all of those requests at this point. Some of our users are regional. Not all are local. We are creating new open space at La Guardia Bath Houses. All of these interim spaces are all nearby. So not everyone has to go to Randall's Island. Randall's Island is 400 acres with a lot of baseball fields, but it is quite a distance. Some people are willing to travel. Some are not."

Settlement of parkland fill –The City stated that all settlement issues related to the fill for Alternative 4 are included in the project's timeframe. The City has determined the poorest soil areas are in the northern section of the park and would require deep soil mixing. Further south, the City has determined, the soil quality improves and therefore settling becomes less of an issue. The City proposes wick draining as the main means of expediting settling. According to the City, the poorest-quality soil area (northern section of ERP) should take 3-9 months to achieve 95% of the final settlement. In the poor soil sections, up to 25 inches (63 cm) of settling is expected. The City reported that for most of the park, the fill will be granular sand topped by horticultural-grade fill. For high-load areas of the park, gravel will be utilized. The City guarantees the quality of the fill materials because the sources of clean soils or fill materials to be used anywhere on the project site would be determined by the construction contractors with review and approval by NY State Department of Environmental Conservation.

5 Synthesis

5.1 Introduction

This review is based on interviews with a wide variety of stakeholders, ranging from community boards, local elected officials, and interest groups, as well as an in-depth discussion with City agencies working on the project. This synthesis integrates the information provided by the stakeholders and the City comparing the concerns and perceptions of each group for the significant topics discussed during the interviews. Where appropriate, Design Alternative 4 is compared with Alternative 3 and the previous RBD/BIG U proposal. This section is structured around the principal objectives stated for the ESCR Project's design (see Chapter 2), here summarized as:

- Reliable coastal flood protection;
- Improved access to and enhanced open space resources; and
- Constructability and scheduling.

Starting with the RBD competition after Hurricane Sandy and the subsequent development of the selected Big U concept, the ESCR Project has been under development for many years. With the involvement of many stakeholders since the beginning of the competition. The RBD/Big U program resulted in a project design with the involvement of many stakeholders by the beginning of 2018. In mid-2018 the City adjusted the project design in order to overcome issues of constructability and feasibility.

According to many stakeholders, the redesign process has been largely internal, with little involvement of stakeholders and communities. After a redesign was completed, the City presented the newly developed Preferred Alternative, for which the stakeholders felt no ownership of what they regarded as a new design that replaced what they refer to as the original plan (i.e. the RBD/Big U plan). It has since been very difficult for both sides to bridge the gap in perspectives and arrive at a consensus about the best solution for coastal resiliency.

What changed is that that the more holistic goals of the RBD designs have become more focused on flood protection in the Preferred Alternative. In addition, the City appears to have changed its perspective about protecting the parkland. In the RBD design, the East River Park was deliberately considered a floodable park, with the line of flood defense at the inland side of the East River Park. In the Preferred Alternative however, protecting the parkland is brought forward as one of the main advantages of Design Alternative 4 over Design Alternative 3.

The FEIS focuses on adverse impacts, which is understandable given the formal requirements pertaining to an impact statement. The assessment shows that not all but many of the adverse impacts are similar or identical for the various alternatives (cf. Table S-1 in the FEIS Executive Summary). Comparing adverse impact is therefore only of limited help to distinguish between alternatives. The choice for an alternative should instead be more holistic based on criteria from sources that supported the FEIS, such as design reports explaining the rationale of a proposal, technical reports explaining the degree to which project goals are met, explanations of how construction can or cannot be carried out and how adverse effects are mitigated.

5.2 Reliable Coastal Flood Protection

Hydraulic Modelling and Risk Assessment – The primary goal of the ESCR Project is flood protection against sea level rise and coastal storm surge. The City has indicated the two Alternatives will provide the same level of protection to match FEMA requirements[4]. This assertion is based upon work done during the conceptual design when supporting hydrology and hydrodynamic modeling analyses were undertaken. These hydrologic and hydraulic analyses were undertaken in 2015 with the focus of understanding the effects of the proposed coastal flood protection system on flood elevations at adjacent properties, and the effects of waves against the proposed flood protection system and wave deflection to adjacent properties. The FEIS refers to this report as the: "East Side Coastal Resiliency Project, Coastal Hydraulics Report, Arcadis, 2015." This report is not publicly available and therefore it is not possible to assess the methods used to extrapolate from the 2015 analysis to the 2018 proposed Alternatives. Without an understanding of the extrapolation process it is not possible to validate the assertion in the FEIS that all Alternatives provide similar protections.

Flood protection is generally not a binary scenario (i.e. 'flooding' or 'no flooding'). The degree of mitigation depends on the form of the interventions. It may well be that the flood wall perfectly prevents flooding from storm surges up to FEMA requirements along the largest part of the project area, but flooding would still occur at the boundaries of the flood wall. It may also be possible that urban flooding from an extreme rainfall storm is greatly mitigated but that pockets of flooding would still persist in the most flood prone spots within the project area. The damage (to infrastructure, buildings, housing, cars, etc.) is then consequently reduced (by interventions) to a fraction of the maximum damage (without protection) – but not to zero. In the case that the flood protection is perfect up to the FEMA requirement minimum, then it is still relevant to analyze which alternative offers best protection for the future knowing that in time (beyond 2050 or earlier when sea level rises faster than predicted) further protection may be required.

The lines of flood defense in Alternative 3 and Alternative 4 are very different. It is therefore possible there will be differences in flood protection in both alternatives. In other words, the flood depth and flood extent for various storm scenarios may be different, resulting in different damage and risk maps. The effect of these differences cascades through the analysis of the alternatives because differences in the hazards will lead to differences in the Benefit-Cost Analysis (BCA).

When asked, the City indicated additional modeling and analysis is currently underway and will be included in the Conditional Letter of Map Revision submission to FEMA later this year. This information has therefore not been part of the decision making in choosing the Preferred Alternative.

Tiebacks at the Project Boundaries – For all alternatives, the flood protection is interrupted at the north and south boundaries of the project area. At the south side the ESCR Project will be flanked by the Two Bridges Project. Seamless connection between the designs of two projects is important here. The north side, however, is in fact the northern edge of the Big U, without a comparably envisioned integrated flood protection system. Although this makes sense given that

[4] *The primary goal of the ESCR Project is flood protection against sea level rise and coastal storm surge. All Alternatives provide flood protection up to 2050 SLR plus FEMA 1/100y.*

the impact of flooding gradually becomes less heading north (see Figure 1) and even though localized flood-proofing actions at the Bellevue Hospital are planned, securing the area needs to be taken into consideration in the final detailed designs of any of the alternatives.

More specifically, the area needs to be secured so that no floodwater can enter the city north of 25th Street to flow inside the project area. Figure 11 shows the Future 2050s Floodplain as published at the NYC Flood Mapper zoomed in for the northern part of the ESCR Project. The map shows flooding north of ESCR Project. As integrated flood protection is not planned here, additional studies would need to show whether the ESCR Project area should be extended or whether another project should focus on a more integrated flood protection for this area.

Figure 11: Future Floodplain 2050s – 1% Annual Chance Floodplain. Source: NYC Flood Hazard Mapper.
http://dcp.maps.arcgis.com/apps/webappviewer/index.html?id=1c37d271fba14163bbb520517153d6d5

Urban Flooding from Rainfall – Prevention of urban flooding from rainfall is not an element of the primary project goals. Although the restructured and extended stormwater and sewer drainage may mitigate part of potential urban flooding as well, there is no guarantee (or proof) that it will be largely mitigated. None of the alternatives propose blue and green infrastructure to support the urban drainage system through the storage and retention of excess rainfall and could also alleviate heat stress during hot days. All alternatives would therefore benefit from the City's green infrastructure program that may connect to the ESCR project.

Shallow groundwater and basement flooding – None of the alternatives account for groundwater flooding in the project area. Despite that drainage improvements in both plans, the plans are comparable and focus on improving storm drainage after heavy rainfall. While these actions do improve the larger scale discharge of storm drainage, it does not solve the issue of basement flooding as a result of quickly rising groundwater tables in areas with basements below shallow groundwater tables.

As indicated in the map in Figure 5, this part of the district (around East Village) has been built on former marshlands with low-lying peaty and clayey soft soils and shallow groundwater tables that respond quickly to rainfall. The map in Figure 7 illustrates that no new drainage infrastructure is installed in the neighborhoods where basement flooding is reported.

Even though basement flooding occurs in the project area, it could be regarded as a different problem altogether and not part of the project scope. However, many residents do not make that strict distinction and regard this as a flood problem that needs to be solved in this flood protection project.

5.3 Improved Access and Enhanced Open Space Resources

Accessibility and FDR Drive – Access to the Park is greatly hampered by the FDR Drive. For many, ideally the FDR would be lowered below grade and 'buried' in a tunnel that would extend the East River Park from the bulkhead all the way to the NYCHA housing (Figure 12).

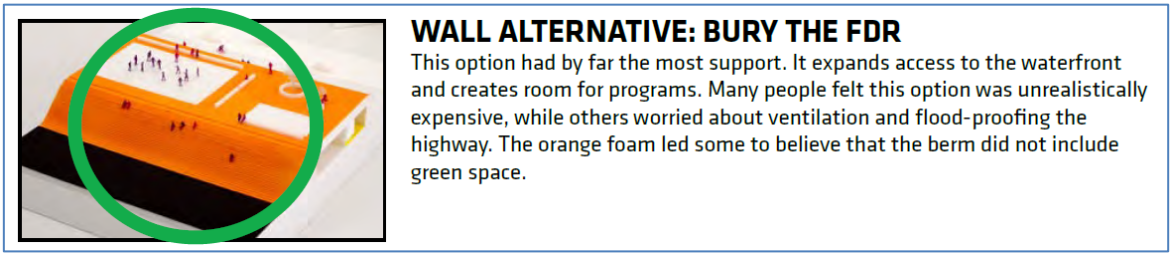
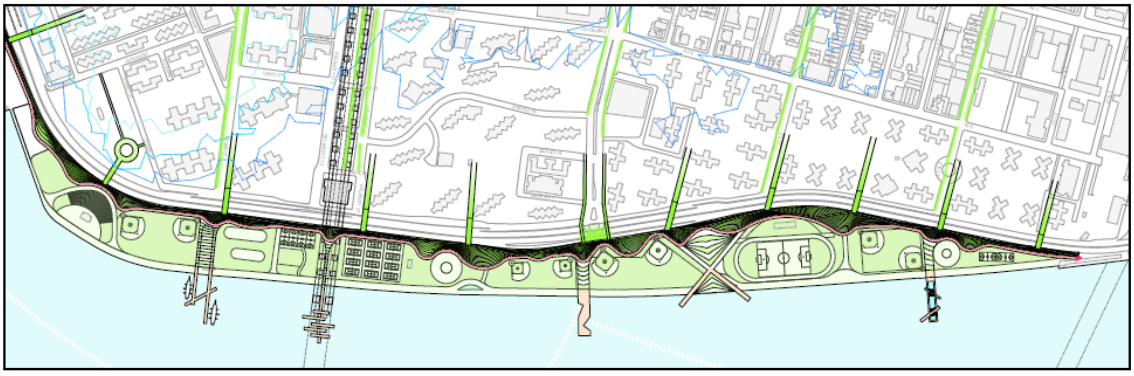


Figure 12: Burying of the FDR Drive illustrated. Green decking of FDR would create a substantial extension of the Park, connecting it to the NYCHA Housing. Source: Rebuild by Design, 2014[5].

However, even the original RBD proposal did not include covering FDR Drive, because it was not seen as feasible as is noted in the description of this RBD proposed design (Figure 13).

[5] *BIG Consortium, 2014. THE BIG "U". Rebuild by Design. Promoting Resilience Post-Sandy Through Innovative Planning, Design & Programming. 276 pp.*

OPTION 2: WIDE BERM



Option 2: WIDE BERM: The wide berm expands upon the narrow berm, incorporating increased park access and upland green streets into a plan with more robust programmatic offerings. The widened berm bulges out between existing program areas, creating large passive recreation spaces and areas for seating, viewing the water, or BBQing. At the water's edge, new features draw visitors out from the shore: an in-river, filtered Harbor Pool for swimming, a pair of lookout piers, a dedicated fishing pier, a potential ferry or water taxi dock, and more.

FUTURE VISION: COVER THE FDR

Although not presented as a formal option given its costs and long-term logistics, covering the FDR is very much a future possibility for both of these scenarios.

Figure 13: Green decking of the FDR is explained as future vision. Source: Rebuild by Design, 2014.

Crossing FDR Drive will then necessarily require bridges. As noted in Figure 8 and in Table 1, Design Alternative 4 includes reconstruction of Corlears Hook Bridge, which is not included in Alternative 3. Alternative 4 therefore has more options for park access than Alternative 3.

In addition, Design Alternative 4 largely leaves the FDR drive untouched, leaving the area open to future infrastructural reconstruction. For Design Alternative 3, construction would need to consider the future development of the FDR (green decking or otherwise). This may result in a lock-in scenario, because it is unknown what future options may be with respect to green decking or tunneling, perhaps because of different transportation concepts or new technology and engineering.

Raised Park or Flood Wall – Some interviewees see the raised park concept as a very radical way of protecting against floods. However, examples of similar projects exist. One example is in the Netherlands, along the coastline of the city of the Hague, where a boulevard was raised, with a floodwall or 'dike' structure underneath the boulevard that provides increased protection levels and promenade spaces at the same time (see Figure 14).

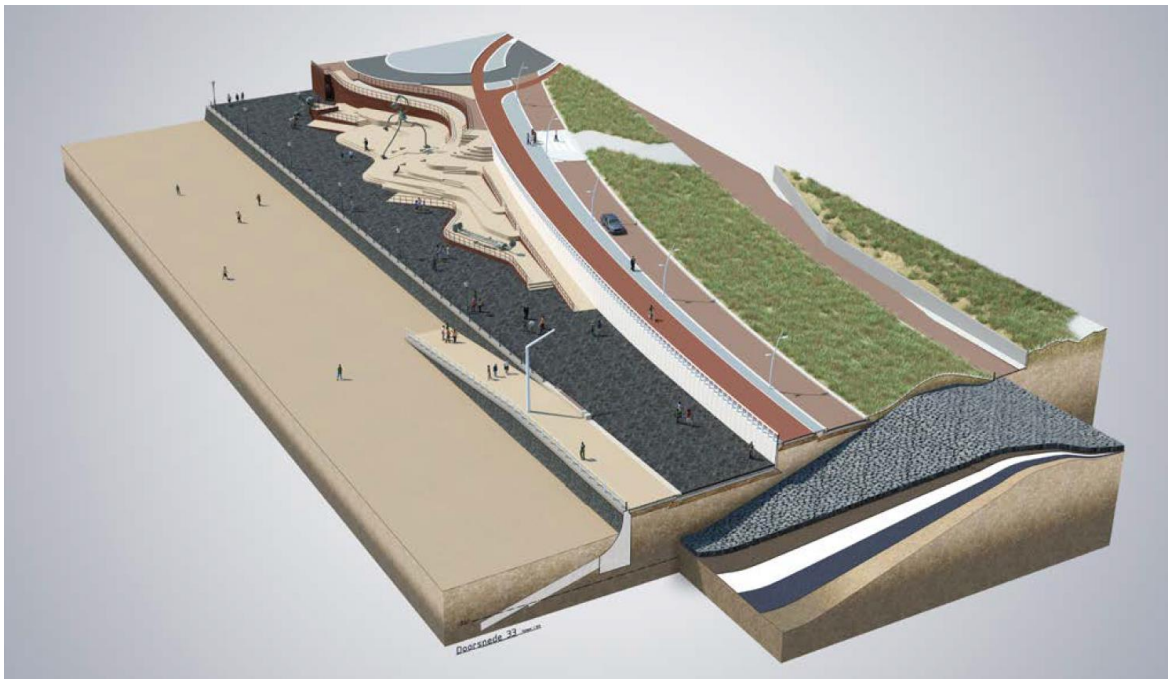


Figure 14: Dike-underneath-Boulevard concept in The Hague, the Netherlands. Source: City of the Hague.

Another example is from the German city of Hamburg, where the Niederhafen River bulkhead was reconstructed as a promenade that also provides flood protection (see Figure 15).

Figure 15: Niederhafen flood protection barrier in Hamburg, Germany, re-connects its river promenade with the surrounding urban fabric of the city; serving as a popular riverside walkway while also creating links with adjacent neighborhoods. Source: https://inhabitat.com/zaha-hadid-architects-undulating-riverside-promenade-doubles-as-a-flood-barrier-in-hamburg/photographs-by-piet-niemann-image-given-to-zaha-hadid-architects-ask-piet-niemann-for-permission-before-use-unallowed-usage-will-be-prosecuted-without-warning-11/

Adaptability to sea level rise – Both Alternatives 3 and 4 are designed to sea level rise conditions up to the 2050 level. The FEIS states that once sea level rise predictions further require an additional increasing of flood mitigation measures, this is done more easily by raising the park than by increasing the height of the flood wall alongside FDR Drive. This would make Alternative 4 a more adaptable design to future sea level rise than Alternative 3. While it is understood that it would

probably be very difficult to increase the height of the floodwall alongside FDR, raising the park by with two feet of fill is not without challenges either. Even assuming that the sports facilities have a lifetime of 30 years and would need to be replaced again around the 2050s (as the City argues), the vegetation will also have to be replanted. Elevating the park with an additional two feet in 2050 would require the removal of all biodiversity and fully-grown trees.

From a technical perspective, the issue of replanting in 30 years would be an argument to raise the park an additional two feet in the current project, instead of postponing it to the future. Another argument would be the potential that sea levels are rising faster than previously predicted (as reported in the September 2019 IPCC report[6]). If the park were raised with the additional 2 feet in the current project, this would make Design Alternative 4 a longer-term solution than Design Alternative 3.

The concept of Design Alternative 3 is that the park area is not protected against flood conditions. Currently East River Park is not designed as a floodable park with vegetation types that allow for regular flooding, and its vegetation and sports fields need maintenance and replacement once flooded. The tree stock has shown (after Hurricane Sandy) to be vulnerable to flooding and salt water intrusion. In Design Alternative 3 this could be changed. The Park could be redesigned into a floodable park. Examples of floodable parks exist, such as the Brooklyn Bridge Park (partially floodable) and similar parks in Rotterdam, the Netherlands, which are designed with floodable and salt-resistant vegetation types. However, this would require the vegetation to be changed in a similar fashion as is proposed in Alternative 4. In addition, the bulkhead and the sports fields will have to be repaired and maintained in time. Figure 16 shows that the current level of the bulkhead would flood under no-storm conditions with high tides at the 2050 sea level.

Figure 16: High Tide 2050s - High Estimate (30 inches SLR) Flooding is indicated in purple. Source: NYC Flood Hazard Mapper. http://dcp.maps.arcgis.com/apps/webappviewer/index.html?id=1c37d271fba14163bbb520517153d6d5

[6] *IPCC, 2019. Special Report on The Ocean and Cryosphere in a Changing Climate. Summary for Policymakers. 34 pp. https://report.ipcc.ch/srocc/pdf/SROCC_FinalDraft_FullReport.pdf*

5.4 Constructability and Scheduling

Constructability and feasibility – If the construction of a design is not possible or comes with very serious disadvantages, then most people will understand the decision to discard the alternative. The FEIS extensively describes the disadvantages of constructing the flood wall alongside FDR Drive in Alternative 3 and the advantages of constructing the raised park in Alternative 4. The City states that according to their value engineering report, construction of Alternative 3 would be very difficult. The report concludes that Design Alternative 4 can be completed faster and with a greater degree of certainty. However, this value engineering report is not publicly available to demonstrate these conclusions.

Settlement of parkland fill comes with a degree of uncertainty and stakeholders raised settlement of fill as a risk to the project construction timeline. City representatives stated all settlement issues have been included in the project's timeframe, however no detailed analysis of the settling process and times was available.

Phasing – Everybody interviewed for this review was convinced of the need for flood protection in the project area and understood that construction works for a project of this size will take many years. Most of the interviewees strongly advocate for construction phasing of the project.

Mayor de Blasio has since announced this project will be conducted in two phases, so this issue is no longer relevant.

Flood Risk During Construction – During construction, when parts of the park are closed and the trees are removed, a severe storm would not only damage the exposed park (equipment, hazardous materials, Con Edison lines, etc.) but may also propagate into the neighborhood more easily without being dampened by the 'roughness' of the park. This is an argument to investigate the effectiveness of installing Interim Flood Protection Measures (IFPM) during construction by way of deployable barriers or sand bags, either at the waterfront or alongside the FDR Drive.

6 Recommendations

6.1 Transparency

Transparency of the decision-making process by City agencies may help rebuild trust and gain support of the community. This would include making available the documentation that was used in the decision-making process, such as the technical studies, hydraulic and geotechnical field surveys and/or modelling, that form the technical basis of the project design, and a clear explanation how the City chose the Preferred Alternative. The reasoning on which the decision was based, if explained well and supported by background documentation, may help build consensus among the public for the preferred alternative.

It would be beneficial to communicate clearly the limitations of the project scope to manage community expectations. For example, that the project does not include burying or placing green decking over FDR Drive, installing blue-green infrastructure, or mitigating groundwater and basement flooding. A clear understanding of the features that are not included in the project would allow for the community to address these separately and discuss additional initiatives, projects or programs, with or without the City.

It would create more trust and relieve community concerns if the City were to provide more detailed mitigation plans for construction dust and particulates, hazardous materials, noise and vibration in addition to the conclusions of the FEIS.

6.2 Communication and Stakeholder Involvement

Though difficult to evaluate in technical terms, one theme which appeared often in the comments of the interviewed stakeholders and in the conversation with the City was communication. The stakeholders considered the communication from the City to have been insufficient while City staff were under the impression considerable information had been made public via the FEIS and community presentations.

Discussions with stakeholders indicated that tensions between the City and the community could be partially alleviated by establishing a community advisory group (CAG). CAGs exist for other projects in New York City, and can result in more community involvement and support of the project. In addition, establishing a commission of environmental experts that advise on execution of the project can help alleviate some of the community's concerns. Community representatives find it imperative to be involved in the late, detailed stages of project design. The interviewees voiced the need for regular social media updates.

6.3 Detailed Monitoring of Adverse Impacts

Monitoring of environmental effects during construction will help reduce uncertainty and confusion about adverse impacts. It is therefore recommended the project include a monitoring program and monitoring of air quality, soil quality, dust, noise and vibration during construction. This would

require clear and transparent thresholds for these categories and online access to regular monitoring reports.

An often-cited positive monitoring example is the reconstruction of the L train tunnel. The Metropolitan Transportation Authority adopted standards for releasing information on public exposure to dust and silica, a part of dust generated by the demolition of concrete which may potentially cause cancer. The Metropolitan Transportation Authority provides online monthly reports on the monitoring of the silica dust[7]. Community representatives stated that they are appreciative of this proactive release of information.

6.4 Interim Flood Protection Measures

Community concerns about flood risk during construction would be greatly alleviated by a plan for interim flood protection measures (IFPMs) to reduce risk for the next 3.5 years during construction.

Flood risk may be higher during construction as a result of clearing the park area of vegetation and deconstruction of the bulkhead. While it is understood that installing IFPMs could slow down the construction process and that sandbags or deployable barriers along the waterfront would offer limited protection, Design Alternative 4 may be specifically suitable for placing sandbags or deployable barriers along the FDR, as little construction work is planned there.

6.5 Flood Protection North of the Project Area

The north side of the project area is the northern edge of the Big U and therefore has no connecting flood protection system. Securing the area needs to be taken into consideration in the final detailed designs of any of the alternatives.

It is recommended a hydraulic study be conducted to investigate whether floodwater can enter the city north of 25th Street. Such a study would help to show whether or not additional measures are needed by extending the ESCR Project area or by another flood protection project for this area.

6.6 Urban Flooding from Rainfall

Community reports indicate that urban flooding occurs in the project area that may not or may only be partly mitigated with the proposed stormwater and sewer drainage system. It is therefore recommended a study be conducted on urban flooding to identify the extent of the issue. This study could be connected to the City's green infrastructure program.

6.7 Phased Construction and Open Space Mitigation

The East River Park is of vital importance to many in the community. Much of the resistance to the project could be alleviated by agreeing to a phased construction within the park so that portions remain open to the public. In addition, it is important to ensure sufficient alternative active and passive open-space recreational resources.

6.8 Additional Park Fill for Increased Flood Protection

Based on the community's resistance to the removing of trees and vegetation, it is recommended including the additional two feet of fill be considered in the current project, rather than leaving it as a future option. Including it in the current project would avoid having to remove the mature vegetation around the 2050s, when sea level will likely reach a level that the two additional feet will be needed.

6.9 Connection of the Park to FDR Drive

The community voiced a desire for a strategic study on long-term future transportation scenarios of the FDR Drive, including options for placing green decking of FDR Drive, which would allow for extension of the East River Park.

6.10 Groundwater and Basement Flooding

To help alleviate concerns about groundwater and basement flooding, it is recommended a geohydrological study on shallow groundwater dynamics in the part of the project area be conducted around the East Village area that is susceptible to basement flooding, perhaps in combination with a geotechnical study on basement leakage. Such a study could include a monitoring program to identify and assess the extent of the problem. This would help formulate initiatives to mitigate basement flooding in addition to the mitigations proposed by the ESCR project.

Appendix A | Design Alternatives and Environmental Impacts

Appendix A starts with summarizing the proposed alternatives. Next, the environmental impacts are described for Alternatives 3 and 4. Finally, the ULURP Approval Resolutions from Community Boards 3 and 6, and the Manhattan Borough Board are summarized.

A.1 Proposed Action Alternatives:

The City has considered five alternatives and mitigation measures to minimize adverse effects on the floodplain and/or wetlands and to restore and preserve the natural and beneficial values they offer, as described in the Final Notice and Public Explanation of a Proposed Activity in a 100-Year Floodplain or Wetland.

No Action Alternative: The project purpose and need would not be met with the No Action alternative. The No Action alternative assumes that no new comprehensive coastal protection system is installed in the proposed project area. In the absence of this system, the existing neighborhoods within the protected area would remain at risk to coastal flooding during design storm events.

The flood protection design alternative with a raised East River Park (**Alternative 4**, Preferred Alternative) raises the level of the park so that both the community and the park are protected from design storm events and sea level rise. The Preferred Alternative would raise the majority of East River Park. This plan would reduce the length of wall between the community and the waterfront to provide for enhanced neighborhood connectivity and integration. Between the park amphitheater and East 13th Street, the park would be raised by approximately eight feet to meet the design flood elevation criteria, with the floodwall installed below-grade. The park's underground water and drainage infrastructure, bulkhead and esplanade, and existing park structures and recreational features, including the amphitheater, track facility and tennis house, would be reconstructed as part of the raised park. Relocation of two existing embayments along the East River Park esplanade is also proposed under this plan to facilitate direct connection to the water and allow for siting of active recreation fields within the park. This alternative would include drainage components to reduce the risk of interior flooding and construction of the foundations for the shared-use flyover bridge to address the narrowed pathway (pinch point) near the Con Edison facility between East 13th Street and East 15th Street, substantially improving the City's greenway network and north-south connectivity in the project area. The Preferred Alternative would also include reconstruction of 10 outfalls located along the park shoreline that discharge to the East River, as well as wastewater and water supply piping and associated features such as manholes and regulators.

The flood protection alternative on the west side of East River Park (**Alternative 2**, Baseline Alternative) would provide flood protection using a combination of floodwalls, levees, and closure structures (e.g. deployable gates) from Montgomery Street to East 25th Street. As the line of protection would generally be located on the western side of East River Park in a portion of the project area, the park would not be protected from the design storm event under this alternative. The neighborhoods to the west of the line of protection would be protected from the design storm event under this alternative. This alternative also includes modifications of the existing sewer

system. A shared-used flyover bridge would be built cantilevered over the northbound FDR Drive to address the Con Edison pinch point.

The flood protection alternative on the west side of East River Park (**Alternative 3**, Enhanced Park & Access Alternative) provides flood protection using a combination of floodwalls, levees, and closure structures. As with Alternative 2, the line of protection would generally be located on the western side of East River Park in a portion of the project area, and the neighborhoods to the west of this line would be protected from the design storm event under this alternative. However, under this alternative, there would be more extensive use of berms and other earthwork in association with the flood protection along the FDR Drive to provide for more integrated access, soften the visual effect of the floodwall on park users, and introduce new types of park experience. The landscape would gradually slope down from high points along the FDR Drive towards the existing at-grade esplanade at the water's edge. Due to the extent of the construction of the flood protection system, this alternative would include a more extensive reconfiguration and reconstruction of the bulk of East River Park and its programming, including landscapes, recreational fields, playgrounds, and amenities. Even with these East River Park enhancements, the park itself would not be protected from the design storm event under this alternative. As proposed in Alternative 2, this alternative would include drainage components to reduce the risk of interior flooding and the shared-use flyover bridge to address the Con Edison pinch point.

The flood protection alternative East of FDR Drive (**Alternative 5**) proposes a flood protection alignment similar to the Preferred Alternative, except for the approach between East 13th Street and Avenue C. This alternative would raise the northbound lanes of the FDR Drive in this area by approximately six feet to meet the design flood elevation, then connect to closure structures at the south end of Stuyvesant Cove Park. This alternative would include drainage components to reduce the risk of interior flooding and the construction of the shared-use flyover bridge to address the Con Edison pinch point.

NYC Parks and OMB, along with the NYC Department of Design and Construction (DDC) developed conceptual designs that aimed to fulfil the principal objectives listed for this project and which included public feedback collected during the scoping process. The chosen conceptual design carried forth through the ULURP application process was Design Alternative 4, or the Preferred Alternative. Table 4 lists the main attributes of the five design alternatives.

Table 4: Design scope and main attributes of the five design alternatives.

Design Alternative 1 (No Action Alternative)	No Action Alternative: "Assumes that no new comprehensive coastal protection system is installed in the proposed project area…. [and] assumes that projects planned or currently under construction in the project area are completed by 2025 (see list of projects in *ESCR Project EIS Appendix A1*)."
Design Alternative 2	"Flood Protection System on the West Side of East River Park – Baseline": • Combination of floodwalls, levees, and closure structures running along the west side of East River Park for the length of the entire Park; • Concrete floodwall begins at Montgomery Street within the sidewalk adjacent to the Gouverneur Gardens Cooperative Village; • Floodwall would cross under FDR Drive with closure structures on the FDR Drive's South Street off- and on-ramps; • Park-side landings of Delancey Street and East 10th Street Bridges would be re-built;

	• Construction of a shared-use flyover bridge to address the pinch point near the Con Edison East River Dock between East 13th Street and East 15th Street (similar to the Preferred Alternative); • Portions of Murphy Brothers and Asser Levy Playgrounds would be replaced in kind instead of reconstructed and improved; • Modifies the existing sewer system (similar to the Preferred Alternative); • Majority of construction would be performed during night-time single-lane closures of the FDR drive; and • Due to proximity to sensitive Con Edison transmission lines, Design Alternative 2 is projected to be constructed in 5 years and completed in 2025.
Design Alternative 3	"Flood Protection System on the West Side of East River Park – Enhanced Park and Access." • Combination of floodwalls, levees, and closure structures running along the west side of East River Park for the length of the entire Park; • More extensive use of levees and earthwork for integrated access, softened visual effects of the floodwall, and introduce new types of park experiences; • Landscape would gradually slope down from high points along the FDR Drive towards the existing at-grade esplanade at the water's edge; • Would include extensive programming such as landscapes, recreational fields, playgrounds, and amenities; • Delancey and East 10th Street bridges would be reconstructed; • A new raised landscaped park-side plaza landing would be created at the East Houston Street overpass; • Flood protection in Project Area 2 would be similar to that proposed in the Preferred Alternative and would include the reconstruction and improvements to Murphy Brothers and Asser Levy Playgrounds; • Modifies the existing sewer system (similar to the Preferred Alternative); • Construction of a shared-use flyover bridge to address the pinch point near the Con Edison East River Dock between East 13th Street and East 15th Street (similar to the Preferred Alternative); and • Due to proximity to sensitive Con Edison transmission lines, Design Alternative 3 is projected to be constructed in 5 years and completed in 2025.
Design Alternative 4 (Preferred Alternative)	"Flood Protection System with a Raised East River Park." • Combination of floodwalls, levees, and 18 closure structures and infrastructure improvements (installation of a below-grade flood protection structure); • Raising the East River Park 8-9 feet above the floodplain; • Reconstructing the Tennis House, Track and Field House, and the East 10th Street comfort station; • Reconstructing most of the East River Esplanade within East River Park; • Construction of a shared-use flyover bridge to address the pinch point near the Con Edison East River Dock between East 13th Street and East 15th Street; • Reconstructing Corlears Hook Bridge over the FDR Drive, and replacing the Delancey and East 10th Street bridges; • Construction of a new park-side East Houston Street landing; • Relocating the 2 existing embayments for recreational programming; • Reconstruction of the amphitheater; • Reconstruction of all water and sewer infrastructure in the park to include drainage isolation and management;

	• Proposed landscape design includes over 50 different species of trees that are more resistant to salt spray exposure; • Construction of new ballfields, active recreational space, grading, and landscaping at Murphy Brothers Playground; • Time for construction is 3.5 years to be completed in 2023. The pre-fabricated bridge span would be installed and completed in 2025; • Approximately 775,000 cubic yards of fill is estimated to be required for the construction at an average of 3 barge trips per day throughout the 3.5 year construction period; • 1,815 trees are proposed to be planted (a net increase of 745 trees); and • Requires ULURP applications for land acquisitions and a zoning text amendment.
Design Alternative 5	<u>"Flood Protection System East of FDR Drive":</u> • Flood protection alignment is similar to the Preferred Alternative, except in Project Area Two between East 13th Street and Avenue C; • Raise the northbound lanes of the FDR Drive by approximately six feet to meet the design flood elevation and connect to closure structures at the south end of Stuyvesant Cove Park; • Flood protection along the FDR Drive would focus on tree planting and urban forest enhancements, including the Lower East Side greening program which would plant up to 1,000 trees in parks and streets and create up to 40 bioswales beginning in fall 2019; and • Would require ULURP applications for land acquisitions and a zoning text amendment similar to the Preferred Alternative.

A.2 FEIS: Environmental Impacts of Alternative 4 Project Design

The environmental impacts of the Preferred Alternative and Alternative 3 summarized below are provided by the ESCR FEIS. These include the long-term and short-term (due to construction) environmental impacts on: open space, urban design and visual resources, natural resources, hazardous materials, water and sewer infrastructure. They also include environmental impacts caused by the construction of the project on: transportation, air quality, noise and vibration, and public health.

<u>Open Space</u>: According to the FEIS, the Preferred Alternative would not result in significant adverse effects to existing or planned open spaces within the study area. The design would not alter the amount of open space or introduce new worker and residential populations to the study area. The Preferred Alternative would alleviate shared-use path congestion at the Con Edison East River Dock pinch point. A total of 991 trees would be removed but new trees would be planted.

<u>Urban Design and Visual Resources</u>: It is not expected that the floodwalls and closure structures installed under the Preferred Alternative would have adverse urban design effects because the structures would be installed in locations where there are existing fences and walls. While a majority of the East River Park will be raised and reconstructed, the park will be landscaped. There will be temporary adverse effects with the removal of 991 existing trees in the park; however, new trees will be planted. Similarly, 48 trees will be removed from Stuyvesant Cove Park, but new trees will be planted. The shared-use flyover bridge at the Con Edison East River Dock pinch point would

elevate pedestrians and bicyclists, making foot and bicycle transportation safer and more convenient. The raising of the East River Park could potentially block existing views of the East River on Grand Street, East 6th Street, East 10th Street, and from within Bernard Baruch, Lillian Wald, and Jacob Riis Houses. The new flyover bridge would not block any views to the waterfront from the study area as no view corridors to the waterfront exist between East 13th and East 18th Streets.

Natural Resources: A total of 991 trees would be temporarily removed, of which 819 are located within East River Park. There would be a net increase of 745 total trees within the project area. These trees would mature over time. The installation of structural supports for the flyover bridge and relocation of the embayments would result in adverse effects to 29,825 square feet of New York State Department of Environmental Conservation (NYSDEC) unvegetated littoral zone tidal wetlands and U.S. Army Corps of Engineers (USACE) Waters of the United States within the east River. These adverse effects include the potential to affect essential fish habitat (EFH) and organisms that may provide a foraging habitat for certain fish protected under the Fish and Wildlife Coordination Act (FWCA). However, for species that are not considered rare, the EFH constitutes a very small portion of available EFH within the New York harbor estuary waters (<0.1%). The design intends to incorporate new elements for the embayments or create additional habitat through the purchase of wetland mitigation credits or off-site tidal wetland habitat that could introduce shellfish and other aquatic life along East River Park.

Hazardous Materials: The Preferred Alternative would have the potential to disturb hazardous materials in existing structures and in the subsurface during demolition and excavation activities. The plan would require the implementation of site management plans (SMPs) that address long-term management of residual hazardous materials and reduce pathways for exposure. With mitigation measures, this design would not cause significant adverse effects related to hazardous materials. Additional soil and groundwater testing must be implemented for review and approval.

Water and Sewer Infrastructure: Design Alternative 4 would be modified to isolate the drainage protected area from the larger sewershed during design storm events, increase its capacity to convey wet-weather flows, and reconstruct and reconfigure the park's underground sewer and water infrastructure. There would be no significant adverse effects to sewer infrastructure in this design iteration.

Construction – Open Space: There is a potential for temporary adverse effects under the Preferred Alternative as a result of the displacement of recreational facilities and open-space amenities in the East River Park for the 3.5-year construction period. The proposed design would reduce open-space ratios by a minimum of 46% in 2023 and a maximum of 51% percent in 2020. The total open-space ratios during construction would be under the City's planning goal of 2.5 acres of combined active and passive open-space ratio per 1,000 residents and would also be lower under the citywide median of 1.5 acres per 1,000 residents.

Construction – Urban Design and Visual Resources: The closed and fenced East River Park would have temporary adverse visual effects for pedestrians during the 3.5 years of construction. Views of the East River would also be temporary blocked.

Construction – Natural Resources: Construction of the Preferred Alternative includes the following in-water elements: the use of construction barges, the installation of shafts to support the shared-use flyover bridge, the reconstruction of the underground sewer system, demolition of the existing bulkhead, demolition of existing embayments, piles, and formwork. Construction has the potential to temporarily effect littoral zone tidal wetlands and USACE Waters of the United States, surface water resources, benthic resources, fish habitats, and threatened and endangered species. NOAA NMFS identified two endangered species, the shortnose sturgeon and Atlantic sturgeon. In addition, there may be temporary adverse effects to terrestrial resources due to the removal of trees. Within a half-mile radius of the project area, there are a total of 183 acres of tree canopy cover, of which 5.6 acres is made up of community gardens that can host diverse plant life and be a suitable habitat for insects. Therefore, no significant adverse effects to terrestrial resources are anticipated.

Construction – Hazardous Materials: The Preferred Alternative has the potential to disturb subsurface hazardous materials in existing structures and the subsurface during demolition and excavation activities. However, with proper mitigation, the potential for significant adverse effects related to hazardous materials would be avoided.

Construction – Water and Sewer Infrastructure: No disruption to existing water or sewer services are anticipated; no adverse impacts to water or sewer infrastructure would occur. Work would be performed according to DEP- and DDC-approved methods and standards.

Construction – Transportation:

Traffic
Construction of the Preferred Alternative would generate 251 passenger-car equivalents (PCEs) during the 6:00 to 7:00 a.m. peak hour and 131 PCEs during the 3:00 to 4:00 p.m. peak hour, exceeding the *CEQR Technical Manual* analysis threshold of 50 vehicle trips. The barging of materials would reduce the volume of truck trips.

Parking
A survey of the ¼-mile radius of the project area showed 70 on-street parking spaces and 60 off-street spaces available near Project Area One and 30 on-street parking spaces and 800 off-street parking spaces available near Project Area Two. Construction under the Preferred Alternative is anticipated to generate a maximum parking demand of 92 spaces for Project Area One and 52 spaces for Project Area Two. Fifty off-street parking spaces could be temporarily displaced during construction at the East River Housing Corporation surface parking lot. Project Area One may have a parking shortfall of up to approximately 35 spaces and would require on-street parking or off-street parking beyond the ¼-mile radius of the study. However, due to the availability of alternative modes of transportation, construction of the Preferred Alternative would not result in any significant adverse parking effects.

Transit
Construction of the Preferred Alternative would generate 144 transit trips during the peak hour of the construction period, below the *CEQR Technical Manual* analysis threshold of 200 transit trips. Therefore, there would be no significant adverse transit effects.

Pedestrians
Construction of the Preferred Alternative would generate 200 pedestrian trips for Project Area One and 112 pedestrian trips for Project Area Two. This design would require the rerouting of the bikeway/walkway along the proposed project area to inland routes which would result in temporary significant adverse effects for users of the East River bikeway/walkway and would require the development and implementation of a rerouting plan.

Construction – Air Quality: With implementation of emission-reduction measures, including dust suppression, idling restriction, and the use of ultra-low sulfur diesel fuel and tailpipe reduction technologies, the Preferred Alternative would not result in any predicted concentrations above the national ambient air quality standards for nitrogen dioxide, carbon monoxide, and particulate matter from non-road and on-road sources.

Construction – Noise and Vibration: Construction of the Preferred Alternative is predicted to result in significant adverse noise effects at 29 addresses listed in the FEIS. Construction noise effects would be up to the mid-80s dBA during daytime and up to the mid-70s dBA during night-time construction. Buildings or units listed in the FEIS that do not have an alternate means of closed-window ventilation (e.g. air conditioning) may experience interior values up to the high-60s dBA, which is approximately 23 dBA higher than the 45 dBA threshold recommend for residential use according to CEQR noise exposure guidelines.

The construction of the Preferred Alternative would occur over a shorter duration (3.5 years) than the other design alternatives and would have lower maximum construction noise levels as pile driving would occur further from the residences.

Pile drivers have the potential to produce vibration levels that exceed the 65 VdB limit, occurring for limited periods of time. Vibration monitoring would be required for all historic structures within 90 feet of the project work area according to the project's construction protection plan (CPP).

Construction – Public Health: The Preferred Alternative would not result in unmitigated significant adverse effects in air quality, water quality, or hazardous materials, but could potentially result in significant adverse effects in construction-period noise effects. However, the construction of the Preferred Alternative would not result in significant adverse public health effects and would not have temporary significant adverse effects that would disproportionately affect children.

A.3 FEIS: Environmental Impacts of Alternative 3 Project Design

Open Space: According to the FEIS, there would be no significant adverse effects on existing or planned open spaces within the study area. Each alternative would slightly alter the ratio of active to passive recreation space.

Urban Design and Visual Resources: It is not expected that new infrastructure would have a significant adverse urban design effect to the project area. Under this alternative, there will be a temporary removal of 590 trees. There would be reduced visual connectivity between the waterfront and adjacent, upland neighborhoods, with potentially significant adverse effects from blocked views of the East River on Cherry and Grand Streets, East 6th, East 10th Street view

corridors, Bernard Baruch, Lillian Wald, and Jacob Riis Houses, and blocked waterfront views from portions of the FDR Drive.

Natural Resources: Alternative 3 would require the temporary removal of trees but would result in a net increase of 325 trees; however, it would leave 563 trees susceptible to future storm events. Similar to the Preferred Alternative, the footings for the flyover bridge have the potential to disturb unvegetated littoral zone tidal wetlands that are foraging habitat for fish.

Hazardous Materials: Similar to the Preferred Alternative, there is the potential to disturb hazardous materials in existing structures and subsurface during demolition and excavation activities. However, with mitigation measures, this design would not trigger significant adverse effects related to hazardous materials; additional soil and groundwater testing must be implemented for review and approval.

Water and Sewer Infrastructure: Design Alternative 3 would include the same modifications to the sewer system that would isolate the drainage-protected area as in Alternative 4. However, there would be no reconstruction of the drainage infrastructure within East River Park and would therefore require more floodproofing of existing sewer infrastructure. There would be no adverse effects to sewer infrastructure.

Construction – Open Space: Similar to the Preferred Alternative, there would be reduction of open space during construction. However, the longer construction period of 5 years leads to the conclusion that the significant adverse direct and indirect open-space effects under Design Alternative 3 would be greater than the Preferred Alternative (with a duration of 3.5 years). The open-space ratios would be reduced by a minimum of 46% in 2025 and a maximum of 50% in 2022.

Construction – Urban Design and Visual Resources: The closed and fenced East River Park during the 5 years of construction would have temporary adverse visual effects on the pedestrian experience over a longer timeframe than the Preferred Alternative. Views of the East River would also be temporarily blocked.

Construction – Natural Resources: Design Alternative 3 does not propose the reconstruction of sewage infrastructure or the removal of the existing bulkhead, and tree removals would be reduced compared to the Preferred Alternative. Therefore, no significant adverse effects to natural resources are anticipated.

Construction – Hazardous Materials: Design Alternative 3 has the potential to disturb subsurface hazardous materials in existing structures and the subsurface during demolition and excavation activities. However, with proper mitigation, the potential for significant adverse effects related to hazardous materials would be avoided. Potential effects would be less than the Preferred Alternative.

Construction – Water and Sewer Infrastructure: No disruption to existing water or sewer services are anticipated; no adverse impacts to water or sewer infrastructure would occur.

Construction – Transportation:

Traffic
Construction of Design Alternative 3 would generate 153 PCEs during the 6:00 to 7:00 a.m peak hour and 85 PCEs during the 3:00 to 4:00 p.m. peak hour, exceeding the *CEQR Technical Manual* analysis threshold of 50 vehicle trips.

Parking
A survey of the ¼-mile radius of the project area showed 70 on-street parking spaces and 60 off-street spaces available near Project Area One and 30 on-street parking spaces and 800 off-street parking spaces available near Project Two. Construction under Alternative 3 is anticipated to generate a maximum parking demand of 55 spaces for Project Area One and 31 spaces for Project Area Two. Alternative 3 would therefore not result in any significant adverse parking effects.

Transit
Construction of Alternative 3 would generate 86 transit trips during the peak hour of the construction period, below the *CEQR Technical Manual* analysis threshold of 200 transit trips. Therefore, there would be no significant adverse transit effects.

Pedestrians
Construction of Alternative 3 would generate 188 pedestrian trips for Project Area One and 112 pedestrian trips for Project Area Two. This design would require the rerouting of the bikeway/walkway along the proposed project area to inland routes which would result in temporary significant adverse effects for users of the East River bikeway/walkway and would require the development and implementation of a rerouting plan for the full 5 years of construction.

Construction – Air Quality: Alternative 3 would have similar air quality effects as identified under the Preferred Alternative. With implementation of emission-reduction measures, including dust suppression, idling restriction, and the use of ultra-low sulfur diesel fuel and tailpipe reduction technologies, the Preferred Alternative would not result in any predicted concentrations above the national ambient air quality standards for nitrogen dioxide, carbon monoxide, and particulate matter from non-road and on-road sources.

Construction – Noise and Vibration: Construction of Alternative 3 is predicted to result in significant adverse noise effects at 20 addresses listed in the FEIS. Construction noise effects would be up to the mid-80s dBA during daytime and up to the mid-70s dBA during night-time construction. The buildings listed in the FEIS already have insulated glass windows and an alternative means of ventilation, and would experience values less than 45 dBA during much of the construction period, which would be considered acceptable under CEQR criteria.

Pile drivers have the potential to produce vibration levels that exceed the 65 VdB limit, occurring for limited periods of time. Vibration monitoring would be required for all historic structures within 90 feet of the project work area according to the project's construction protection plan.

Construction – Public Health: Alternative 3 would not result in unmitigated significant adverse effects in air quality, water quality, or hazardous materials, but could potentially result in significant adverse effects in construction-period noise effects. However, the construction of Alternative 3

would not result in significant adverse public health effects and would not have temporary significant adverse effects that would disproportionately affect children.

A.4 ULURP Approval Resolutions from Manhattan CB3, CB6 and Borough

Manhattan Community Board 3 – Manhattan Community Board 3 voted to approve the ULURP applications for the ESCR project with modifications. The community board voted to approve although they acknowledged that the October 2018 redesigned Preferred Alternative generated profound mistrust within the community due to the perceived lack of community input. The Community Board further cites many aspects of the DEIS that raise concerns, or which are not adequately addressed. The source of the Community Board's approval is derived from two main sources: an understanding that the ESCR project will provide "desperately needed protection of…lives and homes, (and often both)", and multiple new design elements that will require stronger regulatory oversight.

The Community Board addressed at length several of the main reasons why many in the community oppose or do not trust the Preferred Alternative. From 2015 until October 2018, the City "regularly engaged the Community Board on design proposals for the ESCR" and during this time the City sought significant community input, resulting in a preference within many in the community for "the previous design iteration because it utilized a method of resiliency well-established in modern environmental thinking". According to the Community Board, the "process since Fall 2018 has frayed trust in government and public agencies because of the drastic change in plan design done without community consultation".

Additionally, the Community Board resolution often refers to inadequately addressed concerns raised by the Preferred Alternative. The resolution cites the lack of a "study by outside experts of the feasibility of all approaches that have been discussed", the lack of "consensus among the NYC Administration, City Council and State Legislature on whether the Preferred Alternative triggers…alienation", and additionally "has not had outside review by scientists, a blue-ribbon-type panel nor an assessment process envision". Furthermore, the Community Board notes that the Preferred Alternative has "the potential for significant adverse impacts in the immediate area and on the residents of the surrounding neighborhood as well as on the environment", may "generate significant pollutants as the park is raised, rebuilt and filled with imported soil" and may "require moving…habitats that are able to be 'moved' in certain seasons". The resolution continues, noting that "[Department of Parks and Recreation] has also promised a number of improvement to local parks…which…do not provide full compensation for the tremendous loss of open space", and notes with concern that additional parkland mitigation is "described [in the DEIS] as being 'explored,' 'investigated,' or 'assessed,' [making it] clear that concrete plans for many of these impacts have not been fully identified and committed to."

The Community Board is aware of instances where the Preferred Alternative may have less of a negative impact on the community than Alternative 3. The Preferred Alternative aims to have "pile driving related to floodwall construction…further away from residential units" and limits "construction traffic on the residential side of the park and minimizing the drainage repair work that would have to be done on active roadways". Additionally, the "water-based construction" of the

Preferred Alternative “greatly increases the degree of scrutiny the project will be subject to” from three different government bodies.

The Community Board listed mitigations enumerated by the City that require additional clarification and explanation and listed additional mitigations the City must include in the ESCR project. The mitigations requiring clarification include: alternative passive and active open-space resources, phased reopening of sections of East River Park, potential work delays following on recommendations resulting from a yet-to-be-completed NOAA Essential Fish Habitat assessment, the locations and funding for proposed alternative recreational opportunities, specifications for proposed bicycle infrastructure upgrades, updates to the proposed planting of 1,000 street trees and installation of up to 40 bioswales, disclosure of all parks and fields where lighting improvements are planned, identification of all parks and playgrounds under consideration for improvement, guarantees on usage of quieter construction methods and equipment, and requirements on the use of biodiesel fuel, volume of recycled steel and aluminum generated onsite, and construction waste diversion by contractors.

Additional mitigations the Community Board required of the City include:

- explore temporary and immediate mitigation measures for destructive storms that occur during the ESCR project;
- add protection for surge and sea level rise for 2100;
- provide a more comprehensive and robust explanation of the schedule advantages of the Preferred Alternative over Alternative 3;
- establish a 3-5 member independent environmental analysis panel to review the DEIS;
- identify reasonable interim measures to mitigate impacts upon the community during construction;
- give a commitment to seek Envision certification;
- develop temporary measures for immediate storm protection;
- include social resiliency and community preparedness in its planning and funding;
- agree to hold regular updates with affected Community Boards and the community at large;
- establish a Community Advisory Group;
- provide alternative safe routes for pedestrian and cyclist use;
- minimize construction dust;
- consider topsoil and salt-resistant indigenous plants in the re-established natural passive areas of the ESCR project;
- provide a finalized design and timeline for completion of the flyover bridge;
- ADA compliant access into and within the East River Park;
- prioritize permits for local youth groups during and after construction;
- consider sports facilities as an alternative recreation site;
- consider yet-unidentified open spaces within CD3 for alternative park space;
- identify and protect biodiversity;
- immediately create bioswales, tree canopy plantings, and permeable pavers;
- use mature trees for replacements;
- provide temporary space for the LES Ecology Center;
- provide temporary water parks;
- continue to work with the Amphitheater Task Force;
- continue discussions with Gouverneur Gardens in good faith;
- commit to giving regular updates to the Community Board;

- commit definitively to phased construction and reopening;
- assist local residents in accessing alternative parkland; and
- establish a protocol allowing City agencies oversight regarding contractors.

With these mitigations enumerated, Community Board 3 approved of the ULURP applications.

Manhattan Community Board 6 – At the June 12, 2019 full board meeting of Manhattan Community Board 6, the board adopted a resolution that recognized the impact of Superstorm Sandy, which "caused widespread damage…disrupting service to critical transportation, power, communications and medical infrastructure" and noted that "the City of New York" had been "awarded $335 million to evaluate and develop an integrated coastal protection for the 2.2 mile stretch from Montgomery Street to East 25th Street along the East River, which correspond to the 100 year floodplain boundaries through the East Side Coastal Resiliency Project (ESCR). Although CB6 "commend[ed] the Department of Design and Construction (DDC) for developing flood-mitigation designs that seem largely capable of addressing the problem," it also noted that CB6 "has the lowest amount of open space per capita of any community district in the City of New York, and of that open space a large portion – including Stuyvesant Cove Park, Murphy's Brother Playground, and Asser Levy Park – will be affected and closed by construction lasting between two and five years."

In laying out the positive and negative anticipated impacts of the project, CB 6 stated that "DDC improvements slated for the Greenway…now include a flyover bridge to address the perennially dangerous conditions at the Consolidated Edison (ConED) plant's waterfront 'pinch point' between East 15th and East 13th Streets," while expressing that "the reluctance of DDC to close any portion of the FDR Drive for any significant length of time" required the "preliminary construction staging plans" to include "total closure to Stuyvesant Cove Park during construction of the surge barriers and the flyover bridge." CB 6 was also concerned by "DDC plans to bisect Asser Levy Park with a flood-control wall and sliding gate, protecting the landmarked bath house, but leaving the playing fields unprotected and East 25th Street susceptible to tidal surging and flooding." In short, CB 6 found the ESCR to be necessary, but inadequate with respect to both construction staging and its delivery of flood protection.

CB 6 laid out several additional "serious concerns…that should be fully addressed during the ongoing Uniform Land Use Review Procedure process." These concerns included a request for "a detailed plan for noise and dust mitigation all along the construction area," a "presentation of an operational plan for ambulance access to the First Avenue 'hospital row' corridor when barriers are deployed and water runs around the protected Asser Levy Bathhouse and west along East 25th Street and floods First Avenue as it did in 2012; A DOT plan addressing the recently narrowed lanes of traffic on East 20th Street that allows for passage along East 20th Street during the construction of the interceptor gate house;" and "a comprehensive plan on emergent and non-emergent access to Waterside Plaza and adjacent schools when ESCR barriers are fully deployed." To address access issues regarding open space and the waterfront, CB 6 called for "a phased construction timeline for the good of all waterfront users" and "additional mitigation strategies" such as "providing…amenities at existing locations," including "Waterside Pier…the parking area under the FDR from East 18th Street to East 23rd Street," and "possible use of temporary barges." CB 6 also urged "that a feasibility study" regarding "'decking' portions of the FDR" to create new open space "be included in the design review to better inform possible future

projects," that Captain Patrick J. Brown walk be widened "for expanded capacity," that a comfort station be built at Murphy's Brothers' Playground, that the flyover bridge be constructed during the ESCR project, that a crosswalk be added to the "intersection of Avenue C and the north side of FDR Drive Exit 7…and that the exit ramp be modified to provide a legal left turn onto Avenue C at the East 18th Street traffic signal." CB 6 requested "that the ESCR Project team…provide supporting data on the cost-benefit analysis…for the proposed Project Area 2 construction plan," that the East River Park Fire Boat House be preserved, that funding…be put aside to rebuild Stuyvesant Cove Park," and that the "East 20th Street bike lane" be reconfigured "to facilitate faster construction of the interceptor gate house."

At the April 11, 2018 Full Board meeting of Manhattan Community Board 6, the Board adopted a resolution opposing "the northern tie-back" of the flood wall at "the de-mapped East 24th Street" and proposing "the tie-back's placement along East 25th Street, which would allow for the Asser Levy Playground and the Asser Levy Recreation Center to be protected by the same flood wall." CB 6 noted that "the East 25th Street position would…enhance overall safety by improving visibility into the playground, allow for the rarely used sidewalk that abuts the playground to be removed and repurposed as additional park space," and eliminate "the danger of vehicles that are exiting the FDR Highway at high speed from possibly striking pedestrians." CB 6 stated that "the ESCR design team indicated that such a modification may result in additional complexity and cost to the project but was unable to tangibly indicate the impact in a way that could be duly considered against the safety and quality of life concerns raised." Consequently, CB 6 "oppose[d] the…East Side Coastal Resiliency proposal for Project Area 2…unless modifications" were "made such that the entire Asser Levy envelope" was "one contiguous space."

Manhattan Borough Board – On July 23, 2019, the Manhattan Borough Board voted to adopt a resolution regarding "ULURP applications #C190357PQM and N190356ZRM," which had been "referred to the Manhattan Borough Board for review" on June 26, 2019. The "two ULURP approvals" that "The New York City Departments of Transportation (DOT), Citywide Administrative Services (DCAS), Environmental Protection (DEP), and Small Business Services (SBS) are seeking" include "(1) the acquisition of real property and (2) a text amendment to the New York City Zoning Resolution ("ZR") § 62-50 'General Requirements for Visual Corridors and Waterfront Public Access Areas' and § 62-60 'Design Requirements for Waterfront Public Access Areas' to facilitate the East Side Coastal Resiliency (ESCR) Project (the 'Proposed Project')."

The resolution noted that "since January 5, 2015, the City has regularly engaged CB3 and CB6 on design proposals for the ESCR project," but that both "CB3's Full Board voted to not support the ESCR project design that emerged from this process without revisions" and "CB6's Full Board voted to not support the ESCR project design that emerged from this process without revisions" on March 27, 2018, and April 11, 2018, respectively. The resolution then states that "in October 2018, the City unveiled a significantly redesigned proposal for the ESCR project, identified in the DEIS as 'Alternative 4' or the 'Preferred Alternative'" and that "according to the City, a major reason for abandoning the original plan was that the Preferred Alternative 4's construction would not have to be staged, thus reducing the construction schedule from five to three and a half years." This "'Preferred Alternative'" is comprised of several new components that were not in the "previous design iteration." First, "the majority of East River Park" would be elevated "8-9 feet above its current elevation" and the "flood protection systems" would be installed "below grade." Second, the

"overpass bridge at Corlears Hook Park" would be rebuilt and "a flyover bridge" would be built "at the Consolidated Edison (ConEd) plant's waterfront 'pinch point' between East 15th and East 13th Streets." Third, the East River Esplanade, the bulkhead, and the comfort stations would be recreated. Fourth, the 10th Street Playground would be reconstructed and enlarged and the East River Park amphitheater would be rebuilt. Fourth, "the basketball courts…that were lost in the previous design" were re-added, a "'nature play area'" would be constructed in the vicinity of Delancey Street, and new barbecue pits would be installed "at the south end of East River Park." Fifth, "1,442 new trees" would be planted to more than offset the "981 trees" that would be eliminated in construction.

Sixth, in Project Area 1, located between Montgomery and 14th Streets, the floodwall would be constructed within East River Park, in closer proximity to the East River with pile driving taking place "further away from residential units than in the previous design iteration." Likewise, "the line of flood protection" would be relocated "from the west side of East River Park, abutting the FDR Drive, further east toward the East River, located wholly within East River Park, in order to adhere to the City's primary objective to protect…the residential neighborhood, people, and the park itself to avoid having to repair the new park after flooding and storm events, as well as to account for the likelihood of increased tidal inundation from anticipated sea level rise." Seventh, since the Preferred alternative would make use of "water-side construction" and barges for delivery of construction materials, "construction traffic on the residential side of the park" would be substantially reduced. Moreover, because "drainage and sewer construction" would "occur largely within East River Park…drainage repair work that would have to be done on active roadways" would be reduced.

After highlighting these major differences between the alternatives, the resolution emphasizes that "many members of the community stated a preference for the previous design iteration with additional revisions, because it utilized a system of floodwalls and berms (where feasible) as defenses to protect neighborhoods." The resolution then references that "for many in the community, the ESCR process since Fall 2018 has frayed trust in government and public agencies because of the drastic change in plan design done without community consultation." The resolution further states that "many members of the community have also requested a study by outside, independent experts of the feasibility of all the alternatives that have been proposed, including the 'preferred alternative' as well as recommendations to ensure that construction does not negatively impact the residents of NYCHA and the environment while meeting the federal spending deadline." Furthermore, the resolution notes that "there has not been consensus among the City, City Council, and State Legislature on whether the Preferred Alternative triggers the necessity of the public trust doctrine on dedicated parkland approval via alienation for this preferred park plan…" and that "habitats for wildlife will be lost during the duration of the closure and may now have to be moved in certain seasons, thereby affecting the homes and migration patterns for wildlife."

The resolution continues with a litany of items, including "concerns around preliminary construction staging plans," how construction of the "Preferred Alternative" will exacerbate the lack of open space, how Asser Levy Park will be "susceptible to tidal surging and flooding," how "existing waterfront views from certain upland locations would be blocked," how "contaminants could be disturbed during excavation," how "noise and air pollutant emissions by the construction site could affect open space and public health, and how "CB 3 and CB 6 residents…youth sports groups, and all other sports groups" will be adversely affected. In light of these concerns, the resolution calls upon the City to "work with concerned community organizations to identify a mutually agreed upon

independent non-City based environmental consultant to expeditiously review and evaluate the alternatives in the DEIS and describe reasonable interim measures that could be taken to minimize any adverse impacts on the community until the project is implemented." The resolution also urges "the City to make a definitive commitment to a phased timetable of construction within the East River Park, as well as completion of Asser Levy Playground, the Murphy Brothers Playground, and Stuyvesant Cove Park, in a manner that does not impact the overall timeline for project completion with necessary permit applications." In addition, the resolution states that "this phased timetable shall be disclosed and the final plan decided on through engagement consultation with the community, CB3 and CB6."

The Board then resolves that the City must commit to the following: work with the community to secure an independent non-City based environmental consultant to evaluate the alternatives in the DEIS, make a definitive commitment to a phased timetable of construction for East River Park and to complete the other park sections in a way that does not impact the project timeline, commit to and release a bike and pedestrian re-routing for East 20th St, First and Second Avenue, and provide temporary space for the LES Ecology Center and a sustainable, resilient building in East River Park (6-7).

The Board then lists the following additional mitigations that must be included in ESCR: identify recreational resources for the community during construction, inform and consult the community about likely effects of season work restrictions and approval timeline of permits, release further impact construction studies upon marine ecology and wildlife, disclose and discuss location and funding for alternative recreational opportunities, identify which parks and playground improvements are new and not already in the capital projects pipeline, improve activation of Waterside Pier and explore the creation of temporary spaces, provided local residents with access to other open areas, commit to prioritizing permits for local youth groups during and after construction, work with local community organizations to spearhead a Lower East Side Greening program and planting program, evaluate the impact of new lighting at neighborhood parks, explore beginning the flyover bridge construction contemporaneously, guarantee that quieter construction methods and equipment be made available for the construction period, require in bids and/or RPFs the use of biodiesel fuel, require targets be met for volume of recycled steel and aluminum, meet Envision sustainability requirements, and commit contractors to divert construction waste, present comprehensive plan on access to Waterside Plaza when ESCR barriers are closed, conduct additional traffic studies regarding expansion of NYC Summer Streets, specify where bicycling infrastructure upgrades will be located and consider additional solutions, develop alternative routes deemed safe for all, comprehensively redesign the East 20th St bike lane, provide a legal left turn onto Avenue C at the East 8th St traffic signal, develop a plan addressing recently narrowed traffic lanes on East 20th St, design the East 20th St interceptor gate with contextually appropriate materials, install a comfort station at Murphy Brothers' Playground, ensure that all art pieces in the project area will not be demolished and will be included as permanent installations in ESCR's new landscaping, incorporate public art installations and signage with multiple language translations, provide a comprehensive and robust explanation of the schedule advantages of the Preferred Alternative, minimize dust and noise during construction, consider topsoil and salt resistant indigenous plants, ensure ADA compliant access to and within the park, identify and protect biodiversity, make available temporary water parks, continue to work with the Amphitheater Task Force, provide timely updates to CB3 and continue discussions with Gouverneur Gardens, inform individual residents whose views to the waterfront would be blocked, include social resiliency and

community preparedness programming and funding, create a construction hotline and operate 24/7, agree to issue social media updates and regular updates with CB3 and CB6, establish a Community Advisory Group, establish a protocol before work begins to allow City agency oversight over decision making for contractors (7-11).

The Borough Board concluded with an approval with conditions of the ULURP applications.

Appendix B | List of Interviewees

Stakeholders

- East River Alliance - Amy Berkov, April Merlin, Dianne Lake, Fannie Ip, Harriet Hirshorn, Jasmin Sanchez, Naomi Schiller
- East Village Community Coalition (EVCC), LESPI and Olympia Kazi
- East River Park Action - Pat Arnow, Tommy Loeb
- GOLES, Inc. - Damaris Reyes, Executive Director
- Grand Street Guild - Mark Benoit
- Gouverneur Gardens Co-Op Board - Samuel Moskowitz and Rockwell Chan
- LES Ready! - Ayo Harrington
- Lower East Side Ecology Center - Christine Datz-Romero, Renee Crowley, Dani Simons
- NYCHA – CB3 - Felicia Cruickshank/LaGuardia, Dereese Huff/Campos Plaza I, Mercedez Harell/Riis I & Riis II, Camille Napoleon/Baruch Houses
- NYCHA Vladeck Houses Tenant Association - Nancy Ortiz
- NY Giants Youth Baseball - Oscar Fernandez and Danny Ramirez
- Rebuild by Design - Amy Chester
- Smith Houses Tenant Association - Aixa Torres
- Strauss Houses and 344 East 28th Street - Maria Trinidad, Daliah Farrar, Elsie Otero, and Miriam Martinez
- Stuytown Peter Cooper Village Tenant Association - Susan Steinberg
- Sports Teams - Mike Barbieri and Tim Cavanagh
- Transportation Alternatives (TA) - Ellen McDermott
- Village East - Daniel Meyers (Vice President of the Village East Housing Board); Joan Reinuth (resident Stuyvesant Cove Park); Ms Judith (JK) Canipa

Elected Officials and Community Board Representatives

- Council Member Carlina Rivera
- Council Member Keith Powers
- Council Member Margaret Chin’s office: Gigi Li (Chief of Staff) and Anthony Drummond (Director of land use)
- Community Board 3 - Michael Marino, Trever Holland, Yaron Altman, Nancy Ortiz
- Community Board 6
- Congresswoman Nydia Velazquez's Office: Dan Wiley, District director Southwest Brooklyn
- Congresswoman Carolyn Maloney's Office: Mr Shelby Garner
- State Senator Brian Kavanagh
- State Senator Brad Hoylman
- State Assembly Member Harvey Epstein

Appendix C | City representatives attending ESCR Meeting

RE: Hans Gehrels Meeting with City Agencies

Location:
Office of Manhattan Borough President Gale A. Brewer
1 Centre Street, 19th Floor South
New York, NY 10007

Date of Event: 9/13/2019 @ 1200 hrs

In Attendance:

MBPO:
- Borough President Gale Brewer
- Director of Community Affairs Rosie Mendez
- Deputy Borough President Matthew Washington
- Urban Planner Stephanie Chan
- Urban Planner Tara Duvivier
- Community Liaison Brian Lafferty
- Community Liaison Brian Lewis

Mayor's Office
- Community Affairs Unit – Gabrielle Dann-Allel
- Intergovernmental Affairs – Joe Taranto
- Office of Recovery and Resiliency – Carrie Grassi
- Office of the Deputy Mayor for Operations – Minelly De Coo

Department of Design and Construction
- 1st Deputy Commissioner Jamie Torres-Springer
- How Sheen Pau
- Eric Ilijevich
- Andrew Hollweck

Department of Parks and Recreation
- Deputy Commissioner Alyssa Cobb Konon
- Alda Chan

Third Party Entities
- AKRF – Wendy Ho
- AKRF – Robert White
- One Architecture – Matthijs Bouw
- Mathews Nielsen Landscape Architects – Molly Bourne
- Jacobs – Doug Friend
- Deltares – Hans Gehrels