

Paying for the Master Plan: Potential Options

Financial District and Seaport Climate Resilience Master Plan

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1. Overview

This appendix supplements the Financial District and Seaport Climate Resilience Master Plan – Chapter 6: Funding and Financing, and provides detail on the initial screening and sizing of potential sources of funds and financing. In particular, this appendix underscores the process by which the project team screened, analyzed, and selected the funding sources summarized on page 172 of the report.

2. Introduction

Implementing this master plan to protect Lower Manhattan will require significant funding to pay for both the upfront capital cost of construction and the ongoing cost of operations and maintenance (O&M). **A combination of multiple funding sources will be needed, including potential new funding approaches and substantial investment of public funds.**

The project team estimated that the capital costs for construction will range from approximately five to seven billion dollars.ⁱ The flood defense infrastructure as well as new public amenities, such as increased open space and promenades, will also have new O&M requirements and costs.ⁱⁱ

The magnitude of the master plan calls for a funding strategy that considers a broad mix of local, state, and federal sources. While the City can contribute capital and expense funding, the project team analyzed funding strategies that would limit the need for direct contribution from the City’s general fund and identified funding sources that could make a sizable contribution to the capital and/or O&M costs. The City is actively advocating for new federal funding to support resilience projects across New York City and will continue to explore and pursue additional sources of funding.

3. Technical Analysis

3.1. What Are the Potential Funding Sources for the Master Plan?

The project team undertook a four-step process, detailed below, to analyze and identify potential funding sources.

1. Broad survey of potential funding sources
2. Screening of potential sources
3. Shortlist of sources for additional analysis and community outreach
4. Refinement of analysis

The first step was a broad survey of potential funding sources based on national and international precedents for projects of a similar type and scale. This informed a set of key evaluation criteria (see *Table 1*) that provided a framework for screening potential funding sources.

Table 1: Evaluation Criteria for Potential Funding Sources

Category	Criterion	Questions for Evaluation
Financial Feasibility	Viability	How likely is the City to receive funding from this source if it is pursued?
	Size	Is the amount of funds sufficiently large to justify the associated effort?
	Timing	Would the funds be available when needed?
	Predictability*	Are funding streams from this source likely to be stable or volatile over time?

Implementation Feasibility	Legal	Does this source require new processes and/or legislation to establish?
	Other	Will this source be difficult to implement for additional technical or administrative reasons?
Equity*	Fairness	Does this source avoid placing disproportionate burden on low-income or disadvantaged populations?
	Project Nexus	Is there alignment between those who benefit and those who bear the costs?

* Predictability and equity are not criteria for evaluating federal grant sources which are dictated by policies and program guidelines, and do not require a payback that may create a cost burden.

*For federal grant sources only, equity and predictability are not included in the evaluation that follows because the applicability of sources is dictated by federal policy and program guidelines. Federal grants do not create a cost burden on any particular population because they do not require a payback. Also, how federal guidelines and sources may change in the future is not able to be predicted –the goal is to maximize federal grant participation for resilience project citywide.

Based on the screening exercise, the project team created a shortlist of the most viable funding sources for further analysis (see *Table 2*) and conducted outreach, which included meetings, workshops, and a panel discussion with community members, as well as thought leaders to solicit feedback. The final part of the process was refining the analysis by testing preliminary scenarios to understand the amount each source could potentially contribute to the proposed master plan.

3.2. What Can Each Funding Source Contribute?

Given the scale of the proposed master plan and the investment needed, a broad mix of funding sources will likely be required, each presenting its own opportunities and challenges. For example, state and federal grants may only be applicable to specific elements of the project, such as flood protection or transportation facilities, and some sources can only be used to pay for capital costs, not ongoing O&M costs.

Furthermore, different funding sources may become available at different times. For example, federal grants will not be immediately available due to the extensive requirements of application processes, which generally necessitate design at the schematic level to perform the required benefit-cost analyses. Similarly, potential new funding sources, such as a resilience assessment, would require legislative action prior to implementation. Where there is a mismatch between when funds are available and when the relevant costs will be incurred, the City may also consider financing a portion of the project based on future streams of revenue. For example, where a funding source provides an annual revenue stream over many years, the City or a governance entity could issue bonds against the expected revenue to produce a larger upfront amount that could be used to pay for capital costs. However, issuing bonds would increase the overall project costs due to interest payments and other financing considerations.

3.3. Screening of Potential Sources

The team conducted a broad survey of potential funding sources at federal, state, and local level, and performed an initial screening of the sources using the evaluation criteria discussed above. The list of all the sources screened and the results of the initial screening can be found in **Exhibit 1**, split between potential federal sources in *Table 3*, and potential state and local sources in *Table 4*. The project team shortlisted the most viable funding sources for further analysis; the shortlisted sources are listed in *Table 2* below.

Table 2. Shortlisted Funding Sourcesⁱⁱⁱ

Funding Source	Opportunities	Challenges	Potential \$ Amount ^{iv}	Eligible Costs	
Existing Funding Sources	US Army Corps of Engineers (USACE) Civil Works Program	Represents one of the largest sources of funding, with potential to fund up to 65% of the flood defense infrastructure .	Requires an extensive process, including congressional approval and appropriations. Will impact local control over design and timing.	Up to \$3 billion	Capital
	Federal Emergency Management Agency (FEMA) Programs	There are several grant programs including the Building Resilient Infrastructure Communities (BRIC) and the Hazard Mitigation Grants Program (HMGP).	Grants are highly competitive and have funding caps that are small for a project of this scale.	Typically, up to \$50 million per grant (with some exceptions, including HMGP)	Capital ^v
	Capital Investment Grant	Federal Transit Administration grant program that could fund up to 60 - 80% of eligible transportation costs related to ferry infrastructure.	Program is highly competitive, with limited precedents for ferry projects.	Up to \$200 million	Capital
	Infrastructure for Rebuilding America (INFRA) and Rebuilding American Infrastructure with Sustainability and Equity (RAISE) Grants	Long-standing federal surface transportation grant programs, with a new focus in 2021 to address climate risk and environmental justice.	Both programs are highly competitive. Funding contributions are limited to transportation work.	Up to \$160 million	Capital
New Funding Sources Studied	New York State Environmental Bond Act	The Bond Act would introduce a potential new source of funding for resilience-focused projects .	Pending voter approval in 2022.	TBD	Capital
	Insurance Surcharge	Size of contribution dependent on the insurance surcharge rate and assessed lines of insurance policies.	A state-level implementation and allocation mechanism needed.	Estimated \$31 million annual revenue in 2021 dollars	Capital or O&M
	Resilience Assessment	Size of contribution dependent on the resilience assessment structure and the geographic area in which it is applied.	Many Lower Manhattan commercial property owners already pay special assessments to the local business improvement district; need to consider impact on businesses, particularly locally owned small businesses. Requires state legislation to establish and is untested in U.S.	Up to \$30 million annual revenue in 2021 dollars	Capital or O&M
	Revenue from new development (residential, office)	Not included in the master plan due to public feedback, space constraints, and permitting challenges	Revenue estimates are highly dependent on multiple assumptions, including size and use of buildings, timing, and market demand.	Variable	Capital or O&M

Additionally, the project team acknowledges and analyzed – to the extent possible at the time of the report – several future funding sources at the federal level that may contribute to the project:

- Infrastructure Investment and Jobs Act (IIJA, or the Bipartisan Infrastructure Bill)
- Promoting Resilient Operations for Transformative, Efficient, and Cost-saving Transportation (PROTECT) program
- Safeguarding Tomorrow through Ongoing Risk Mitigation Act (STORM Act)
- Ida Disaster Supplemental Funding

The entire financial analysis spanned over two years from late 2019 to late 2021. The information and findings reflect the data available at the time of the analysis.

4. Detailed Analysis of Shortlisted Funding Sources

4.1. Existing Federal Funding Sources

4.1.1. U.S. Army Corps of Engineers (USACE) Civil Works Program

What is it? USACE partners with local and state governments across the country to plan, design, and build flood protection systems. Their process begins with authorization from the U.S. Congress to conduct a feasibility study of an area. The study examines flood risk and potential risk reduction strategies to identify a recommended project with quantifiable benefits that are greater than the estimated project cost. Funding must be appropriated for both the feasibility study and the project’s construction. The maximum federal share for construction is 65% and can be lower if the local sponsor (such as City government) prefers an option that costs more than what is determined to be most cost-effective option. USACE conducts the design and construction of the project, with the local sponsor required to own a property interest in the land necessary for project implementation, ensure this property is free of contamination, and contribute the required cost-share. Once constructed, the local sponsor is responsible for operations and management.

USACE has a current feasibility study that includes the Financial District and Seaport neighborhoods—the NY and NJ Harbor and Tributaries Feasibility Study (HATS). The HATS study identified five initial alternatives for regional coastal flood risk management that include a variety of strategies including shoreline levees and floodwalls as well as storm surge barriers. The study was put on hold under the prior federal administration but was restarted in 2021. A draft feasibility report is expected in Summer 2022, and the final product, Chief of Engineers Report, is expected by June 2024. The project team has coordinated with the USACE team leading the HATS study to share information about existing conditions and the potential strategies explored in our study.

How would this apply to our project? The team has researched USACE program requirements and spoken with City departments and other municipalities who are partnering with USACE on projects. Implementation of the Financial District and Seaport project through the USACE process would provide a significant funding source for the project elements that provide direct flood protection, although not costs associated with other goals, such as public access. However, there are several implementation challenges. USACE could implement only a portion of the entire project, such as protection of a specific at-risk asset or facility, or a specific stretch of coastal resiliency measures. Any portion of the project implemented by USACE would need to provide stand-alone flood risk reduction benefits determined to be greater than the cost of the relevant portion of the project.

What are the next steps and other considerations?

- The City will continue to coordinate with USACE on the HATS study to seek potential opportunities for implementation of elements of this master plan. If elements of the master plan are included in the HATS recommended plan, the next step would be to seek Congressional authorization for funding. Given the

expected high costs of the regional strategies, this authorization will be challenging. Another option would be to pursue implementation through a new USACE process, in which case the next step would be to pursue Congressional approval for a new feasibility study, building off the work of the Master Plan. Unlike the HATS study, this new study would be specifically focused on the Seaport and Financial District neighborhoods and be consistent with the City's goals for flood protection and public access in this area. Typically, it takes several years to get Congressional authorization and funding for a feasibility study. The study itself is supposed to take a maximum of 3 years; however, complex studies can take much longer. Following the study completion, it could take over two years to finalize the design and begin construction, and Congressional appropriation for project construction would be needed. Design and construction of such a complex project will take time no matter what, but the involvement of USACE could increase the time required.

- The USACE funding process is uncertain. Funding for construction must be appropriated by Congress over many years and a project of this scale would take many years to complete.
- If the project was designed and built by USACE, the City would have less control over the final design. The City has partnered with USACE to design and build flood protection in other areas of the city (such as the South Shore of Staten Island and the Rockaways) and has encountered challenges in achieving the City's design goals through following the USACE process.
- USACE may not consider all the elements of the proposed design—such as waterfront open space improvements and community amenities—necessary to achieve the project's flood risk reduction mission. As a result, those components may not be incorporated into any portion(s) of the project USACE would implement. The project can include such additional elements in the scope, however, they might be considered as “locally-preferred” elements or “betterments” that would require the City to fund 100% of the cost from other sources.
- Any future adaptation of elements of the master plan constructed by USACE would require their review and approval.
- Despite these challenges, funding through the USACE process represents potentially the largest single source of funding towards the project costs.
- Project construction through USACE would mean that the project would not need to go through the USACE permitting process for Section 10 or Section 404. However, USACE would need to include a Section 404(b)(1) evaluation in the EIS and a Section 401 water quality certification from New York State would be needed.

4.1.2. Federal Emergency Management Agency (FEMA) Programs

What is it? FEMA provides grants for a variety of hazard mitigation and resiliency activities, including the planning, design, and construction of flood risk management projects. The most relevant programs for the project are the Building Resilient Infrastructure and Communities (BRIC) Program and the Hazard Mitigation Grant Program (HMGP). BRIC is a competitive grant program that runs on an annual cycle of FEMA issuing a notice of funding, gathering applications from local jurisdictions via states and tribal governments, and issuing award notices. The HMGP funding requires a Presidentially declared disaster for funding to become available. The BRIC program is considered the preeminent “proactive” mitigation program while the HMGP is often times considered the “reactive” mitigation program, as funding only becomes available after a major disaster. The total amount of funding available varies but the project team anticipates that over the next couple of years, the BRIC program will continue to maintain approximately \$1 billion in available funds annually. In July 2021, FEMA announced \$500 million in BRIC grants to be awarded in fiscal year 2020, and in August, FEMA announced \$1.16 billion available for

allocation in fiscal year 2021 in BRIC in addition to IJJA funding and \$3.5 billion for HMGP due to the COVID-19 pandemic.

How would this apply to our project? While they would not cover a significant portion of the project overall costs, FEMA grant programs could cover potential early capital investments to provide near-term flood protection. Separate from the master plan, the City is currently pursuing a BRIC application for an initial investment in the Seaport area to provide interim flood protection.

What are the next steps and other considerations?

- Applications for either FEMA program would require a benefit-cost analysis to show that the project’s benefits exceed its costs.
- HMGP and BRIC grants are generally split 75% federal share and 25% local share to account for the total project costs. BRIC projects are capped at \$50 million per project. HMGP does not have a cap and is solely dependent on the funds available and projects submitted.
- The BRIC program places a \$50M cap on awards to any single project, and BRIC and HMGP require that funded projects have independent utility and have a benefits costs analysis value greater than 1.

4.1.3. Funding for Ferry Transportation: Capital Investment Grants (CIG)

What is it? The Capital Investment Grant (CIG) program is administered by the Federal Transit Administration (FTA) to fund “fixed guideway” transit capital investments, for which passenger ferry elements could qualify. CIG follows a discretionary approval process in which the FTA selects and recommends funding recipients and funding share to Congress for approval. The CIG program has a sizable funding pool, though it is often oversubscribed. Since its inception, the program has received approximately \$2.3 billion in funding appropriation each year. For Fiscal Year 2022, the program received \$2.5 billion to fund 17 existing projects and 8 new projects.

How would this apply to our project? The CIG program could help cover costs of any ferry expansion that may be included in the final project. New services with a CIG request of \$100 million+ could qualify for the CIG New Starts program, covering up to 60% of eligible costs. Capacity expansion of at least 10% of an at- or near-capacity corridor could qualify for the CIG Core Capacity program, covering up to 80% of eligible costs. Based on program guidelines, recent grant awards and CIG precedents in the region, it would be reasonable to assume a CIG grant would cover no more than 50% of the eligible costs. Based on such assumptions, it is estimated that CIG could contribute up to \$200 million to resiliency elements, which could change based on eligible ferry elements.

What are the next steps and other considerations?

- Determining an approach to the CIG program based on the project’s final scope would be an important first step.
- Limited ferry precedents and potential competition with other regional applications for alternative transit priorities could present challenges to secure CIG funding. Coordination among regional transit projects will therefore be important to understanding competing priorities and coordinating on federal strategy and efforts.
- In addition to federal regulations (e.g., NEPA) and oversight requirements, the program requires a multi-year and multi-phase process from project development and engineering to funding approval. The potential long timeframe and substantial pre-project development work compared to some other programs should be factored in the decision on whether to pursue. It is critical to secure these funds before starting work on the project to avoid a timing mismatch between funding needs and availability.

4.1.4. Funding for Surface Transportation: INFRA & RAISE Grant Programs

What is it? The Infrastructure for Rebuilding America (INFRA) grant program is a federal program managed by the US Department of Transportation (USDOT) to provide federal financial assistance to highway and freight projects, with a new focus in 2021 to address climate risk and environmental justice. In Fiscal Year 2021, the total funds available for INFRA grants amounted to \$1 billion.

Similar to the INFRA program, the Rebuilding American Infrastructure with Sustainability and Equity (RAISE) program^{vi} funds surface transportation capital projects, including highways, bridges, tunnels, and ferry boats and terminal facilities. In Fiscal Year 2021, the total grant pool is \$1 billion, with a maximum grant size set at \$25 million.

How would this apply to our project? Both programs offer funding opportunities for project elements related to FDR Drive viaduct improvements. Based on the program guidelines, an INFRA grant could cover up to 60% of eligible transportation costs, and RAISE could cover up to 80% with a maximum grant cap of \$25 million. Based on the current design and cost estimates as well as past awards, it is estimated that INFRA and RAISE combined could contribute as much as \$160 million, which could change based on eligible surface transportation elements.

Both programs are only applicable to transportation and are highly competitive. However, the IJA introduces \$7.5 billion INFRA funding for projects with significant local or regional effects, including \$3.2 billion of new money. The new funding could alleviate some of the competitive pressure and increase the potential of funding a critical component of the project.

What are the next steps and other considerations?

- Similar to CIG, given the competitive nature of both INFRA grant and the RAISE grant programs, implementation of either will benefit from engagement with both State and City DOTs to understand competing priorities and coordinate on federal strategy and efforts.
- Eligible uses may be broadened under the new proposed federal regulations and should be monitored.

4.2. New State/Local Funding Sources Studied

4.2.1. New York State Environmental Bond Act (Mother Nature Bond Act)

What is it? The Environmental Bond Act, formerly known as the Mother Nature Bond Act, is a proposed \$3 billion state-level general obligation bond to combat climate change, reduce flood risk, invest in resilient infrastructure, and revitalize critical fish and wildlife habitats. While specific uses are not yet available, the bond funding would include allocations to resiliency-related initiatives^{vii}:

- \$1 billion for restoration and flood risk reduction
- \$550 million for water quality improvement and resilient infrastructure
- \$700 million for climate change mitigation (potentially limited applicability)
- \$550 million for open space conservation and recreation (potentially limited applicability)

How would this apply to our project? Although not a funding source at this time, being subject to voter approval, the Bond Act is a potential new funding mechanism for the project given its resiliency focus.

What are the next steps and other considerations? The Bond Act was originally proposed and included in the State's FY2020 ballot but removed due to the COVID-19 pandemic. It was included in the State's FY2022 Enacted Budget Bill and will be submitted for State voter approval on the November 2022 ballot. Given it would be a state-level source, appropriate allocation mechanisms would need to be developed. A statewide resiliency fund could be one option, as discussed in more detail below.

4.2.2. Insurance Surcharge

What is it? An insurance surcharge is a fee assessed on premiums relating to select insurance policy lines (such as property, title, and casualty) calculated as a percentage of the premium. A surcharge on insurance premiums could create a dedicated revenue source to raise funds for resiliency projects and may be naturally progressive as the surcharge amount is tied to the value of the insured property or covered policy holder. Similar insurance surcharge funding mechanisms have been used by the California Earthquake Authority to fund building retrofits that reduce earthquake risk exposure and by the State of Florida’s Hurricane Catastrophe Fund to fund any gaps in coverage for hurricane-related claims during emergency events.

How would this apply to our project? Based on research and discussions with advocacy groups and industry experts, a surcharge would likely be structured as a pass-through to consumers and collected on a statewide basis from a regulatory perspective. The surcharge would be applied to insurance lines with relevance to flood protection and resiliency. The project team tested a range of surcharge rates and different sets of property and casualty (P&C) insurance policy lines to analyze the funding potential both on an annual basis and an upfront basis, assuming financing against the surcharge revenue stream. The results are driven by rate, assessed lines, and financing assumptions, but show substantial funding potential. Depending on the assumptions, it could potentially raise up to \$31 million in 2021 dollars annually towards the project.

What are the next steps and other considerations?

- As a new source of funding, advocacy work and additional analysis around a governance and implementation framework would be necessary.
- Given that an insurance surcharge would most likely be feasible to implement on a statewide basis, an allocation mechanism to distribute revenues would need to be established. The following section discusses a statewide resiliency fund as a potential option.
- The structure of the surcharge as well as the surcharge rate will need to be designed to consider social equity implications. For instance, the project could consider using a tiered rate and/or affordability rebate system to help mitigate the impact on lower-income policyholders and ratepayers.
- Coordination with private insurance providers, which would collect the surcharges from the consumers, could provide additional insights into the feasible range and structure of the surcharge rate, based on the industry environment and market conditions.

4.2.3. Resilience Assessment

What is it? A resilience assessment is a potential funding mechanism where funds are raised from property owners to pay for the construction and/or operations of resilience infrastructure. Overall, the concept is similar to special assessment districts (SADs) that exist across the nation to provide a wide variety of municipal services, including water and sewer services, schools, fire services, library services, etc.

How would this apply to our project? The project team examined the possibility of implementing a resilience assessment for directly and indirectly impacted properties. This included studying estimates for the losses, insurance premiums, and building-scale flood mitigation costs that might be avoided by property owners if the project is implemented, the projected ongoing O&M costs associated with the project, and the current assessed values for properties. The analysis yielded a high-level estimate of \$30 million in annual revenue in 2021 dollars that could potentially be raised from such an assessment.

What are the next steps and other considerations? A resilience assessment could serve as a relatively early funding source for the project, but its implementation would be impacted by financial, political, operational, and governance considerations. State legislation would be needed.

A resilience assessment could also be considered as part of a broader citywide approach to climate resilience. An assessment could be structured in a way to limit social equity issues. The amount raised in different neighborhoods subject to any assessment would likely represent varying proportions of the overall costs of projects in those neighborhoods, due to many factors, such as the different levels of flood risk and income levels.

4.2.4. Long-term Lease Revenues from New Development

What is it? Due to regulatory restrictions, space constraints and public feedback, the City is not proposing any residential or large-scale commercial development as part of the master plan. However, for comprehensiveness, the project team studied whether the inclusion of new mid- and high-rise buildings on a shoreline extension could provide a significant source of funding for the City, in the form of long-term ground lease payments, to help pay for the project.

How would this apply to our project? The project team studied potential building footprints that were set back from the East River and would not interfere with flood defense infrastructure or site access. The analysis focused on the area south of the South Street Seaport historic district and considered building heights ranging from approximately 550 to 1,200 feet. The analysis also considered a variety of uses within buildings, to understand the trade-offs between revenue-focused and social infrastructure-focused uses.

The revenue estimates were highly dependent on assumptions made regarding the location and size of buildings, and the mix of uses. For example, residential condominiums, hotels, or office spaces would generate significantly more revenue than 100% affordable housing, or community space, which could result in a net cost to the project. Other considerations, including the timing of upfront capital costs, real estate market fluctuations, and financing costs would also impact the revenue available to offset a portion of the project costs.

Based on preliminary analysis, revenue-focused development would be unlikely to contribute significantly towards the project's capital costs. As the shoreline extension would need to be constructed prior to lease payments commencing, bonds would need to be issued. The financing and other costs associated with the bonds would significantly reduce the amount available to pay for the capital costs. However, long-term lease payments associated with revenue-focused development could help to fund a portion of the ongoing operations and maintenance (O&M) costs for the new infrastructure. More social infrastructure-focused development would produce lower revenues that may not even be able to help fund O&M costs.

What are the next steps and other considerations? The project team will continue to work with the community and agency partners to explore the most appropriate role for buildings to help achieve the project goals.

4.3. Potential Future Federal Funding Sources

4.3.1. IJJA / Bipartisan Infrastructure Bill

The Biden Administration is increasingly focusing on infrastructure investment and climate resiliency. The recently passed Infrastructure Investment and Jobs Act (IJJA), also called the Bipartisan Infrastructure Bill, enacted in November 2021, introduces \$550 billion of nationwide new infrastructure spending, including \$47 billion in new funding for resilience infrastructure and funding injections to existing programs. The federal reconciliation spending plan, a part of the overall Build Back Better plan, also proposes to allocate significant funding to coastal

resiliency. As of October 2021, over twenty federal agencies, including the Department of Transportation (DOT), Department of Housing and Urban Development (HUD), and U.S. Army Corps of Engineers (USACE), had released Climate Adaptation and Resilience Plans. The plans demonstrate a federal priority on embedding climate resiliency into the relevant programs and addressing climate equity by incorporating environmental justice into program requirements/criteria.

Although more details on the programs to be funded, eligibility, and final amounts remain uncertain, the proposed programs represent potentially substantial sources of funding for the project^{viii}. The project team will continue to track and monitor these potential future sources.

4.3.2. PROTECT program

The Promoting Resilient Operations for Transformative, Efficient, and Cost-saving Transportation (PROTECT) program was created in May 2021 under the Surface Transportation Reauthorization Act to fund resiliency improvement for transportation infrastructure. The IJA authorized \$7.3 billion of funding for this program in formula grants, and an additional \$1.4 billion from the Highway Trust Fund (HTF) for this program from FY 2022 through 2026 for competitive grants.

4.3.3. STORM Act

The Safeguarding Tomorrow through Ongoing Risk Mitigation (STORM) Act was passed in January 2021 and authorizes capitalization of new revolving loan funds to provide hazard mitigation assistance to local governments. The revolving loan funds will be administered at a state level. The eligible scope defined in the Act is highly aligned with the project. Any potential contribution to the project is limited at current funding levels. \$300 million has been allocated in appropriations for Fiscal Year 2021 to 2023 (\$100 million per year). The IJA allocated an additional \$500 million over the next five years that will augment the amount of funding available.

4.3.4. Ida Disaster Supplemental Funding

The Ida Disaster supplemental funding is part of the Extending Government Funding and Delivering Emergency Assistance Act, passed in September 2021, and signed into law to provide over \$28.6 billion emergency funding to cover Ida and other climate change-related natural disaster costs. Guidance around eligibility requirements and any potential allocation for New York City projects is not yet available. The project team expects more information will be available in the first half of 2022.

- The approved funding allocates \$5 billion for the Community Development Block Grant Disaster Recovery (HUD CDBG-DR) program, for long-term disaster recovery relief for major disasters that occurred in 2020 or 2021, including restoration of housing and infrastructure, economic revitalization, and mitigation measures.
- The funding allocates \$3 billion to the U.S. Army Corps of Engineers (USACE) to accelerate construction of flood and storm damage reduction projects.
- FEMA funding was also included, and additional guidance on the distribution of the funding is expected to be available in January 2022.

4.4. Implementation Consideration: Establishment of a Statewide Resilience Fund

A Statewide Resilience Fund is a funding pool that collects, holds, and distributes funds for resilience projects, such as revenues from an insurance surcharge, or proceeds from the Environmental Bond Act. A state-level fund could help mitigate concerns around equitable distribution among projects across the state by setting clear, statewide rules. Precedents for state resilience funds include programs in Virginia, Maryland, Texas, Florida, and

North Carolina, among others. Funding for a statewide fund could come from federal or state sources, or from the insurance surcharge discussed above. Other options include Regional Greenhouse Gas Initiative proceeds, private donations, or repayments and investment income.^{ix} A method would need to be developed to allocate funds to individual municipalities or projects, either through a competitive process, prioritization based on set criteria, or a formula (such as population). The fund could provide funding and financing through low/no-interest loans, grants, or credit enhancement.

5. Conclusion

As noted in the master plan, this project requires a broad mix of local, state, and federal sources to enable a stream of funds that can cover costs of construction and long-term O&M. As project planning and design advance, the City will continue to monitor and explore new funding sources and further develop the overall funding strategy.

ⁱ The low end represents the value in 2021 dollars and the high end accounts for the impacts of inflation over a representative construction schedule.

ⁱⁱ More detail on project costs is provided in the Project Costs Appendix.

ⁱⁱⁱ The estimated size of each potential source is based on the facts and circumstances present at the time of this master plan and may change over time as this project, funding programs, and financial markets evolve.

^{iv} Amounts here are escalated to take into account an estimate of the effect of inflation over the duration of the project unless stated otherwise.

^v Federal funding can be used for design and construction costs which are generally the same as City capital expenses with some exceptions.

^{vi} Previously known as the Better Utilizing Investments to Leverage Development (BUILD), and Transportation Investment Generating Economic Recovery (TIGER) Discretionary Grants.

^{vii} Per the Environmental Bond Act of 2020, subject to additional specifications in the FY2022 Enacted Budget Bill - Capital Projects (S2504-D/A3004-D)

^{viii} All numbers shown for federal funding sources are national amounts unless otherwise stated.

^{ix} In the State of New York, Regional Greenhouse Gas Initiative (RGGI) proceeds are dedicated to “pursue opportunities for clean energy, energy efficiency, and carbon reduction,” including green jobs and an electric vehicle rebate program. Re-allocating RGGI proceeds could require a legislative action and could impact these existing programs.

Exhibit 1: Initial List of All Sources Screened

The initial lists of Federal and State/Local funding sources screened are summarized in *Table 3* and *Table 4* below based on the evaluation criteria discussed in *Table 1*. As noted earlier, predictability and equity are not criteria used for evaluating Federal grant sources. In terms of predictability, timelines for grant application and disbursement are dictated by policies and program guidelines. Federal sources were considered neutral for equity considerations because they are existing funding sources with rigorous applications processes and do not require a payback that may create a cost burden. This is in contrast to many State/local sources which would be new and require equitable design.

Please note the tables summarize the result of the initial screening analysis conducted from 2019 to 2020 including information available at the time of the analysis.

Table 3: Initial List of Federal Sources Screened

Criterion		Rationale
U.S. Army Corps of Engineers (USACE) Civil Works Program [SHORTLISTED]		Plans, designs, constructions, and funds water resources projects with a focus on the highest performing work within the three main Civil Works mission areas, including flood and storm damage reduction. Funds are authorized annually through Congressional appropriation.
Eligibility		This project should be eligible for direct apportionment under the Civil Works Program, primarily focused on flood protection and flood risk mitigation
Financial Feasibility	Viability	<ul style="list-style-type: none"> • Clear alignment with Civil Works mission areas in terms of flood and storm damage reduction • Requires a direct apportionment from Congress Uncertainty as to annual funding allocations
	Size	<ul style="list-style-type: none"> • No set cap on annual authorizations • 65% maximum federal share of flood protection construction costs
	Timing	<ul style="list-style-type: none"> • Both new and ongoing funding must be authorized through annual Congressional appropriations
Implementation Feasibility	Legal/Other	<ul style="list-style-type: none"> • Requires ceding control of design and construction to USACE absent a unique arrangement to allow the City to implement the funded work, and coordination with the USACE New York District on project implementation • Would involve USACE participation in environmental permitting, design, and construction processes •
Rebuilding American Infrastructure with Sustainability and Equity (RAISE) program [SHORTLISTED]		Funds the construction of highways, bridges, and tunnels; ferry boats and terminal facilities; eligible transit capital projects; operational improvements and capital and operating costs for traffic improvement projects; construction of pedestrian and bicycle facilities.
Eligibility		Primarily applicable to surface transportation elements, road, bridge, transit, or intermodal transportation components
Financial Feasibility	Viability	<ul style="list-style-type: none"> • Intended to fund investments in surface transportation infrastructure that will have a “significant local or regional impact” • Competitive, heavily oversubscribed grant program
	Size	<ul style="list-style-type: none"> • Maximum grant size of \$25 million
	Timing	<ul style="list-style-type: none"> • Annual application cycle
Implementation Feasibility	Legal/Other	<ul style="list-style-type: none"> • It is likely to involve significant efforts in application preparation and federal review • 80% maximum federal share of project costs in urban areas

Capital Investment Grant (CIG) program [SHORTLISTED]		Competitive grant program that funds “fixed guideway” transit capital investments, for which passenger ferry elements could qualify.
Eligibility		Primarily applicable to fixed guideway transit projects which include passenger ferry projects. The project must either include new services or capacity expansion.
Financial Feasibility	Viability	<ul style="list-style-type: none"> • Long-standing program with a big funding pool • Competitive, heavily oversubscribed grant program
	Size	• Could cover up to 60-80% of eligible costs, but could be lower based on precedents
	Timing	• Annual application cycle
Implementation Feasibility	Legal/Other	<ul style="list-style-type: none"> • It is likely to involve significant efforts in application preparation and federal review • 80% maximum federal share of project costs in urban areas
Building Resilient Infrastructure and Communities (BRIC) <i>Superseded Pre-Disaster Mitigation (PDM) Program in FY2020</i> [SHORTLISTED]		Provides discretionary federal grant assistance in implementing a sustained pre-disaster natural hazard mitigation program.
Eligibility		Eligible under Resilient Infrastructure category. Projects must be consistent with the goals and objectives identified in the current, FEMA-approved State and Local Hazard Mitigation Plans. Projects must be proven cost-effective using FEMA’s guidance on benefit-cost analysis.
Financial Feasibility	Viability	• \$50 million grant ceiling for a single project in FY2021
	Size	• Under the IJJA, a total of \$1 billion will be funded to the BRIC program over the next five years (annual funding availability is not yet known)
	Timing	<ul style="list-style-type: none"> • Annual application cycle • Maximum period of performance of 36 months from the date of award
Implementation Feasibility	Legal/Other	<ul style="list-style-type: none"> • Competitive grant program • Requires application through New York State – local governments are not directly eligible and must apply as sub-applicants • Maximum federal share of 75% of eligible activity costs
FEMA Hazard Mitigation Grant Program (HMGP) [SHORTLISTED]		Provides funding to local communities for hazard mitigation after a presidentially declared disaster Administered by New York State.
Eligibility		Eligibility defined by the notice of funding opportunity specific to each presidentially declared disaster. In 2022, New York State issued two funding opportunities, one for Remnants of Hurricane Ida (DR-4615) and one for COVID-19 (DR-4480). Projects must be proven cost-effective used FEMA’s guidance on benefit-cost analysis. Implementing hazard mitigation projects eligible under each.
Financial Feasibility	Viability	<ul style="list-style-type: none"> • New York State’s priorities for DR-4615 to target declared counties, which includes New York County, however total federal available is limited. • New York State’s priorities for DR-4480 are to target disadvantaged and socially vulnerable areas. There are substantially more funds available under this opportunity.
	Size	<ul style="list-style-type: none"> • Total federal funds available statewide for DR-4615 announced in Feb. 2022 are \$40.3 million • Total federal funds available statewide for DR-4480 announced in March 2022 are \$293 million
	Timing	<ul style="list-style-type: none"> • Dependent on specific funding opportunities. DR-4615 was announced in February 2022 and applications are due in May 2022. DR-4480 was announced in January 2022 and applications are due in June 2022. • Maximum period of performance of 36 months from the date of award
Implementation Feasibility	Legal/Other	<ul style="list-style-type: none"> • Competitive grant program • Requires application through New York State – local governments are not directly eligible and must apply as sub-applicants • Maximum federal share of 75% of eligible activity costs

Infrastructure for Rebuilding America (INFRA) Grant program (Nationally Significant Freight and Highway Projects (NSFHP) Program) [SHORTLISTED]		Funds highway and freight projects of national or regional significance on the National Highway Freight Network or National Highway System. Large projects must generate national or regional economic, mobility, or safety benefits and contribute to the accomplishment of one or more of the national goals described under 23 U.S.C. 150.
Eligibility		Primarily applicable to transportation and transit elements
Financial Feasibility	Viability	<ul style="list-style-type: none"> Awarded in addition to federal formula allocations Competitive program – Project competitiveness will depend on the final scope of transportation infrastructure components as well as the competitive landscape in terms of the scope and impacted geography of other project applications
	Size	<ul style="list-style-type: none"> Minimum project cost of \$100 million for Large Projects (with corresponding minimum federal grant of \$25 million)
	Timing	<ul style="list-style-type: none"> Annual application cycle
Implementation Feasibility	Legal/Other	<ul style="list-style-type: none"> As a large competitive grant program, may involve significant efforts in application preparation and federal review process Maximum INFRA share of 60% of total eligible cost Maximum total federal share of 80% of total eligible cost
Congestion Mitigation and Air Quality Improvement Program (CMAQ)		Formula grant program to fund projects that improve traffic flow and transit investments. Three primary elements of eligibility are transportation identity, emissions reduction, and location in or benefiting a nonattainment or maintenance area.
Eligibility		Applicable to bicycle transportation, pedestrian improvement, or transit elements
Financial Feasibility	Viability	<ul style="list-style-type: none"> Projects must be included in a Metropolitan Planning Organization (MPO) transportation plan and transportation improvement program (TIP) As a formula grant allocation, will compete with other New York State capital funding priorities
	Size	<ul style="list-style-type: none"> \$193 million apportionment to New York State in FY2019
	Timing	<ul style="list-style-type: none"> Annual federal apportionment
Implementation Feasibility	Legal/Other	<ul style="list-style-type: none"> State allocation subsequent to federal apportionment Maximum federal share in accordance with 23 U.S.C. 120, generally 80%
Demonstration, Priority, and Special Interest Projects [INACTIVE]		Demonstration, priority, surface transportation, or special interest projects designated by Congress in various transportation authorization and appropriations acts
Eligibility		Projects designated directly by Congressional authorization
Financial Feasibility	Viability	<ul style="list-style-type: none"> Program inactive as of 2006 Requires project-specific authorization and appropriation by Congress Could be reinstated as part of the Build Back Better plan with bipartisan interests, but timing remains to be determined
	Size	<ul style="list-style-type: none"> In 2006, the last year earmarked funds were appropriated, \$594 million was identified for 519 surface transportation projects and \$24.75 million for 24 highway projects
	Timing	<ul style="list-style-type: none"> N/A – program inactive. When active, by annual Congressional appropriation
Implementation Feasibility	Legal/Other	<ul style="list-style-type: none"> Maximum federal share of 80%, with some exceptions

FEMA Flood Mitigation Assistance Program (FMA)		Provides community level flood mitigation funding, including set-aside funding for Community Flood Mitigation projects with “proven techniques that integrate cost effective natural floodplain restoration solutions and improvements to National Flood Insurance Program (NFIP)-insured properties that benefit communities with high participation and favorable standing in the NFIP”.
Eligibility		Eligible under the Community Flood Mitigation category.
Financial Feasibility	Viability	<ul style="list-style-type: none"> Under the IJA, a total of \$3.5 billion will be funded to the FMA program over the next five years (\$700 million per year) Only one Community Flood Mitigation project selected per applicant (State of New York) though
	Size	<ul style="list-style-type: none"> \$10 million maximum federal share for Community Flood Mitigation projects
	Timing	<ul style="list-style-type: none"> Annual application cycle Maximum period of performance 48 months after funding Selections Date
Implementation Feasibility	Legal/Other	<ul style="list-style-type: none"> Competitive grant program Requires application through New York State - local governments are not directly eligible and must apply as sub-applicants Maximum federal share of 75% of eligible activity costs (90% for Repetitive Loss properties, 100% for Severe Repetitive Loss properties)
Ferry Boat and Terminal Facilities Construction Program (FBP)		Construction of ferry boats, ferry terminals, and ferry maintenance facilities in accordance with 23 U.S.C. 129(c) and 147. Replaced the prior Ferry Boat Discretionary Program, which was effectively ended in 2009.
Eligibility		Applicable only to ferry terminal and ferry maintenance facility elements. Not applicable to private facilities
Financial Feasibility	Viability	<ul style="list-style-type: none"> Very limited applicability - must prove construction of a bridge or tunnel is infeasible to be eligible
	Size	<ul style="list-style-type: none"> \$78 million authorized for allocation in FY2021. Maximum grants awarded of \$16.8 million (nationally) and \$5.5 million (NY State) in FY2018
	Timing	<ul style="list-style-type: none"> Annual allocation cycle
Implementation Feasibility	Legal/Other	<ul style="list-style-type: none"> Federal allocation distributed by formula (35% by number of passengers carried; 35% by number of vehicles carried; and 3% by route miles serviced); operator must be registered in the National Census of Ferry Operators State DOT must request allocation of funds for projects ready to be authorized Maximum federal share of 80%
High Priority Projects (HPPs) Program [INACTIVE]		Allocated obligated funding for a set of particular High Priority Projects
Eligibility		Primarily applicable to highway components
Financial Feasibility	Viability	<ul style="list-style-type: none"> Inactive as of 2009.
	Size	<ul style="list-style-type: none"> \$14.8 billion authorized for FYs 2005 - 2009 for 5,091 projects under Safe, Accountable, Flexible and Efficient Transportation Equity Act – A Legacy for Users (SAFETEA-LU)
	Timing	<ul style="list-style-type: none"> Four-year authorization
Implementation Feasibility	Legal/Other	<ul style="list-style-type: none"> Direct federal apportionment Maximum federal share of 80%

Highway Infrastructure Program		Federal formula grant program to fund construction of highways, bridges, and tunnels, including set-asides for bridge replacement/ rehabilitation and installation of railway-highway crossing protection
Eligibility		Primarily applicable to highway components
Financial Feasibility	Viability	<ul style="list-style-type: none"> Given specific program requirements, this project is unlikely to be competitive for New York State allocations
	Size	<ul style="list-style-type: none"> \$142 million total allocation to New York State in FY2019
	Timing	<ul style="list-style-type: none"> Annual federal apportionment
Implementation Feasibility	Implementation	<ul style="list-style-type: none"> Allocated by federal apportionment and distributed by state through NYSDOT Federal share is governed by 23 U.S.C. 120, generally 80%
Highway Safety Improvement Program (HSIP)		Federal formula grant program to fund highway safety improvement projects on public roads / publicly owned bicycle or pedestrian pathways. Emphasizes a data-driven, strategic approach to improving highway safety
Eligibility		Applicable only to safety elements of highway components. All highway safety improvement projects must meet the HSIP eligibility criteria described in the MAP-21 HSIP Interim Eligibility Guidance
Financial Feasibility	Viability	<ul style="list-style-type: none"> Given data-driven safety focus, competitiveness of project elements is likely to be very limited
	Size	<ul style="list-style-type: none"> \$104.4 million apportionment to New York State in FY2019
	Timing	<ul style="list-style-type: none"> Annual federal apportionment
Implementation Feasibility	Implementation	<ul style="list-style-type: none"> Allocated by federal apportionment to the state, and distributed by the state through NYSDOT Federal share 90%, subject to adjustment
National Corridor Infrastructure Improvement Program (NCIIP) [INACTIVE]		Funds highway construction projects in corridors of national significance. Program repealed by Moving Ahead for Progress in the 21st Century Act (MAP-21) in 2012
Eligibility		Primarily applicable to highway components
Financial Feasibility	Viability	<ul style="list-style-type: none"> Program inactive as of 2012
	Size	<ul style="list-style-type: none"> FY2009 program allocation of \$1.95 billion
	Timing	<ul style="list-style-type: none"> Based on funding availability
Implementation Feasibility	Legal/Other	<ul style="list-style-type: none"> Discretionary funding based on application process Maximum federal share of 80%
National Highway Freight Program (NHFP)		Funds projects that contribute to the efficient movement of freight on the National Highway Freight Network, including enhancement of the resiliency of critical highway infrastructure
Eligibility		Primarily applicable to highway components
Financial Feasibility	Viability	<ul style="list-style-type: none"> Projects must be identified in a freight investment plan included in a State Freight Plan (SFP), Statewide Transportation Improvement Program (STIP)/Transportation Improvement Program (TIP) and consistent with the Long-Range Statewide Transportation Plan and the Metropolitan Transportation Plan(s)
	Size	<ul style="list-style-type: none"> \$56.9 million apportionment to New York State in FY2019
	Timing	<ul style="list-style-type: none"> Annual apportionment
Implementation Feasibility	Legal/Other	<ul style="list-style-type: none"> Allocated by federal apportionment and distributed by state through NYSDOT Federal share generally 80%

National Highway Performance Program (NHPP)		Formula grant program to fund progress toward the achievement of national performance goals for improving infrastructure condition, safety, congestion reduction, system reliability, or freight movement on the National Highway System (NHS)
Eligibility		Applicable to pedestrian walkways and bicycle transportation facilities on land adjacent to any highway on the NHS (which includes the FDR Drive) as well as Project elements involving an NHS highway
Financial Feasibility	Viability	<ul style="list-style-type: none"> Projects must be identified in the Statewide Transportation Improvement Program (STIP)/ Transportation Improvement Program (TIP) and be consistent with the Long-Range Statewide Transportation Plan and the Metropolitan Transportation Plan(s)
	Size	<ul style="list-style-type: none"> \$952.7 million apportionment to New York State in FY2019
	Timing	<ul style="list-style-type: none"> Annual federal apportionment and subsequent State allocation
Implementation Feasibility	Legal/Other	<ul style="list-style-type: none"> Formula allocation – does not require a grant application Maximum federal share in accordance with 23 U.S.C. 120, and generally 80% for most projects
National Highway System (NHS) [INACTIVE]		Funds the construction and improvements of NHS highway segments, including habitat and wetland restoration that is related to funded projects, and environmental restoration and pollution abatement in accordance with 23 U.S.C. 328. <i>Inactive - not extended under MAP2</i>
Eligibility		Applicable to highway elements and environmental restoration related to funded components
Financial Feasibility	Viability	<ul style="list-style-type: none"> Program inactive as of 2012
	Size	<ul style="list-style-type: none"> \$30.5 billion for FYs 2005-2009 authorized by SAFETEA-LU
	Timing	<ul style="list-style-type: none"> Annual apportionment by formula
Implementation Feasibility	Legal/Other	<ul style="list-style-type: none"> Apportionment by formula among states Federal share generally 80%
National Oceanographic and Atmospheric Agency (NOAA) Coastal Resilience Grants (CRGs)		Funds projects and resilience strategies to help coastal communities and ecosystems prepare for and recover from climate/weather hazards, including land use/hazard mitigation planning, disaster preparedness projects, and environmental restoration efforts.
Eligibility		As a coastal shoreline county, New York is eligible to compete for CRG funding. Particularly applicable to environmental mitigation elements given program's focus on wildlife habitat conservation and restoration – project elements without clear wildlife/habitat benefits may be less competitive. IJA authorizes \$1.5 billion funding for various NOAA coastal resiliency programs, but program eligibility needs further evaluation.
Financial Feasibility	Viability	<ul style="list-style-type: none"> Municipal applicants are directly eligible to apply Highly competitive process for small grant pool
	Size	<ul style="list-style-type: none"> Maximum federal grant awarded for a single project was \$3 million in 2019 grant slate
	Timing	<ul style="list-style-type: none"> Annual application cycle Award period up to three years
Implementation Feasibility	Legal/Other	<ul style="list-style-type: none"> Competitive grant program Federal funds must be matched at a 2:1 ratio of federal to non-federal contributions.

Projects of National and Regional Significance (PNRS) [INACTIVE]		Funds high-cost transportation infrastructure facilities for critical national economy and transportation needs not adequately funded within existing surface transportation program categories. Any surface transportation project eligible for assistance under 23 USC is eligible.
Eligibility		Primarily applicable to highway elements
Financial Feasibility	Viability	<ul style="list-style-type: none"> Program inactive as of 2015, when no additional funding was allocated under 2015 FAST (Fixing America's Surface Transportation) Act Total eligible cost must be greater than the lesser of \$500m or 50% of the federal highway funds apportioned
	Size	<ul style="list-style-type: none"> Proposed \$500 million included in 2012 MAP-21 authorization; these funds were not appropriated by Congress
	Timing	<ul style="list-style-type: none"> Annual appropriation
Implementation Feasibility	Legal/Other	<ul style="list-style-type: none"> Allocation by application under 2005-2009 SAFETEA-LU
Surface Transportation Block Grant (STBG)		Funds construction of highways, bridges, and tunnels; ferry boats and terminal facilities; eligible transit capital projects; operational improvements and capital and operating costs for traffic improvement projects; construction of pedestrian and bicycle facilities.
Eligibility		Applicable to highway components, pedestrian walkways, and bicycle transportation facilities, and associated environmental measures, as eligible
Financial Feasibility	Viability	<ul style="list-style-type: none"> Projects must be identified in the Statewide Transportation Improvement Program (STIP) / Transportation Improvement Program (TIP) and be consistent with the Long-Range Statewide Transportation Plan and the Metropolitan Transportation Plan(s)
	Size	<ul style="list-style-type: none"> Totals apportionment of \$479 million for New York State in FY2019
	Timing	<ul style="list-style-type: none"> Annual apportionment
Implementation Feasibility	Legal/Other	<ul style="list-style-type: none"> Apportionment by formula among states, sub-allocated within states by formula Federal share in accordance with 23 U.S.C. 120 – generally 80%
Transportation Alternatives (TA) Set-Aside Program		Set-aside of annual STBG formula funding to fund (i) construction, planning, and design of on-road and off-road trail facilities for pedestrians, bicyclists, and other nonmotorized forms of transportation as well as (ii) environmental mitigation activity, including pollution prevention and pollution abatement activities and mitigation to address stormwater management, control, and water pollution prevention or abatement related to highway construction or highway runoff.
Eligibility		Potential applicability to drainage elements as well as public pathways and amenities
Financial Feasibility	Viability	<ul style="list-style-type: none"> As a formula grant allocation, will compete with other potential New York State project allocations
	Size	<ul style="list-style-type: none"> \$29.5 STBG TA set-aside for New York State in FY2019
	Timing	<ul style="list-style-type: none"> Annual federal apportionment and subsequent State allocation among projects
Implementation Feasibility	Legal/Other	<ul style="list-style-type: none"> Set-aside under State STBG allocation Federal share generally 80%

Table 4: Initial List of State/Local Sources Screened

Criterion		Rationale
New York State Environmental Bond Act [SHORTLISTED]		Formerly known as the Mother Nature Bond Act, it is a proposed \$3 billion state-level general obligation bond to combat climate change, reduce flood risk, invest in resilient infrastructure, and revitalize critical fish and wildlife habitats. Pending voter approval in 2022.
Financial Feasibility	Viability	<ul style="list-style-type: none"> The Bond Act was originally proposed and included in the State’s FY2020 ballot but removed due to the COVID-19 pandemic. It was included in the State’s FY2022 Enacted Budget Bill and will be submitted for State voter approval on the November 2022 ballot.
	Size	<ul style="list-style-type: none"> Pending voter approval, the Bond Act proposes \$1 billion for restoration and flood risk reduction and \$550 million for water quality improvement and resilient infrastructure.
	Timing	<ul style="list-style-type: none"> TBD
	Predictability	<ul style="list-style-type: none"> TBD
Implementation Feasibility	Legal/Other	<ul style="list-style-type: none"> Given it would be a state-level source, appropriate allocation mechanisms would need to be developed.
Equity	Fairness	<ul style="list-style-type: none"> TBD pending allocation mechanisms
	Project Nexus	<ul style="list-style-type: none"> TBD pending allocation mechanisms
Insurance surcharges [SHORTLISTED]		A surcharge on select property, title and/or casualty insurance premiums. Based on a history of insurance surcharges levied by states to capitalize funds related to natural disasters.
Financial Feasibility	Viability	<ul style="list-style-type: none"> Would require NY State enabling legislation to establish a Trust Fund or Public Benefit Corporation in order to receive surcharge capitalization A larger policyholder pool will both provide a larger revenue stream, but may pose greater potential for political challenges and inter-project competition for funding
	Size	<ul style="list-style-type: none"> Depending on the assumptions used, it could potentially raise approximately \$31 million annually in 2021 dollars.
	Timing	<ul style="list-style-type: none"> Leverageable long-term revenue stream in the case of an ongoing surcharge
	Predictability	<ul style="list-style-type: none"> Based upon consumer insurance premiums, so subject to changes in the coverage purchased and value of properties insured
Implementation Feasibility	Legal/Other	<ul style="list-style-type: none"> Political consensus would be needed to implement legislation Requires coordination with private insurance providers
Equity	Fairness	<ul style="list-style-type: none"> May be naturally progressive, as the amount of the surcharge would be tied to the value of the insured property. Would create a new source of funding that could help fund resiliency projects in low-income and disadvantaged neighborhoods Any affordability issues could be mitigated through a tiered rate and/or affordability rebate system
	Project Nexus	<ul style="list-style-type: none"> Depending on jurisdiction, alignment between surcharge payers and project beneficiaries is likely to be low

Long-term lease revenues [SHORTLISTED]		Revenue from long-term ground leases of portions of the newly created land, with the City retaining land ownership as well as some development risk
Financial Feasibility	Viability	<ul style="list-style-type: none"> • Only relevant if there are potential development sites. None were included in the master plan due to public feedback and space constraints • Precedents include Battery Park City and Brooklyn Bridge Park • Would require the City to allocate the revenues to this project
	Size	<ul style="list-style-type: none"> • Would be highly dependent on multiple factors including the number and size of any potential development sites, the size and use of buildings on those sites, and market demand
	Timing	<ul style="list-style-type: none"> • The land would need to be created prior to receipt of any revenue, and market demand would influence timing for execution of leases
	Predictability	<ul style="list-style-type: none"> • Revenues dependent on market demand for new leases, and lease terms, which may create long-term unpredictability
Implementation Feasibility	Legal/Other	<ul style="list-style-type: none"> • Permitted under current legislation
Equity	Fairness	<ul style="list-style-type: none"> • Uses such as affordable housing could be included on potential development sites. However, the amount of revenue from leases for such uses would be significantly lower and could result in a net cost to the City.
	Project Nexus	<ul style="list-style-type: none"> • Tenants under the leases making the payments would be benefit from the project
Resilience Assessment [SHORTLISTED]		Additional charge imposed on property owners in a defined area (for example, based on benefited properties) to fund public improvements benefiting the area
Financial Feasibility	Viability	<ul style="list-style-type: none"> • Could provide a sizeable and predictable revenue stream • The area and assessment could be defined and scaled to correspond with the properties that would be protected by the project and the consequential benefits that the owners would receive
	Size	<ul style="list-style-type: none"> • Highly dependent on the size of the defined area and assessment
	Timing	<ul style="list-style-type: none"> • Ongoing revenue stream
	Predictability	<ul style="list-style-type: none"> • Potentially highly predictable, although subject to variability if based on assessed property values
Implementation Feasibility	Legal/Other	<ul style="list-style-type: none"> • New legislation might be required as a special assessment may not be feasible under existing legal framework
Equity	Fairness	<ul style="list-style-type: none"> • Would impose an additional cost on benefited property owners – however, likely naturally progressive and could be designed to minimize any affordability issues
	Project Nexus	<ul style="list-style-type: none"> • Strong alignment, depending on how it is structured, as properties subject to the assessment would be protected by the project
Transfer of Development Rights (TDR)		Transfer of development rights from either newly created land or from existing parcels in the project area; TDR program may additionally benefit from an upzoning that creates additional floor area.
Financial Feasibility	Viability	<ul style="list-style-type: none"> • The new land would need to be created prior to any transfer of development rights associated with it • For other TDR mechanisms in the City, East Midtown and Hudson Yards are precedents that provide specific implementation and funding models • Both scenarios would require modification of existing zoning regulations to allow transfer of floor area within a special district, and identification of granting and receiving sites within that district.
	Size	<ul style="list-style-type: none"> • Under the East Midtown rezoning, the amount that the City receives is set by a formula • Total sales proceeds would depend on the square footage of development rights to be transferred and market demand
	Timing	<ul style="list-style-type: none"> • Dependent on new development projects on privately-owned sites within the relevant area, and impacted by market demand

	Predictability	<ul style="list-style-type: none"> Unpredictable as it would depend on the local real estate market
Implementation Feasibility	Legal/Other	<ul style="list-style-type: none"> Would require modification of the existing zoning regulations to create a transfer mechanism Potential political opposition to increasing permitted density Need to defend legal nexus between TDR rationale and density reapportionment Funds/proceeds from TDR would need to be clearly dedicated to project uses
Equity	Fairness	<ul style="list-style-type: none"> Rezoning for additional density may create additional congestion / stress on local infrastructure, a particular concern in the dense FiDi-Seaport area – would be studied through City Environmental Quality Review process if TDR program is pursued
	Project Nexus	<ul style="list-style-type: none"> Depending on how it would be structured, TDR program may be more or less conceptually aligned with the project
Development Impact Fees / Linkage Fees		One-time developer payments to cover the cost of new / expanded public capital facilities serving new development, including infrastructure
Financial Feasibility	Viability	<ul style="list-style-type: none"> Would require new enabling legislation from New York State Most current precedents in State of California
	Size	<ul style="list-style-type: none"> Fees typically calculated based on cost of new infrastructure / facilities required due to new development
	Timing	<ul style="list-style-type: none"> Payment generally required prior to issuance of a certificate of occupancy
	Predictability	<ul style="list-style-type: none"> Unpredictable as the amount, location and timing of any new development in the area is unknown and would depend on market demand
Implementation Feasibility	Legal/Other	<ul style="list-style-type: none"> Would require new state enabling legislation as well as designation of an enacting agency and assessing department
Equity	Fairness	<ul style="list-style-type: none"> Fees paid are conceptually linked with the cost of new development Imposes an additional fee on new development, which could create a disincentive for local growth with negative impacts on local job creation and provision of local amenities
	Project Nexus	<ul style="list-style-type: none"> Direct alignment between new development and the costs of associated infrastructure
Land sale		Sale of newly created land in exchange for upfront payments to the City
Financial Feasibility	Viability	<ul style="list-style-type: none"> Only feasible under design scenarios that create significant new developable areas. None were included in the master plan due to public feedback and space constraints
	Size	<ul style="list-style-type: none"> Would be highly dependent on multiple factors including the number and size of any potential development sites, the size and use of buildings on those sites, and market demand
	Timing	<ul style="list-style-type: none"> One-time sale proceeds; costs to create new land would be incurred first
	Predictability	<ul style="list-style-type: none"> Unpredictable as would depend on market demand
Implementation Feasibility	Legal/Other	<ul style="list-style-type: none"> Waterfront property is inalienable and so cannot be sold
Equity	Fairness	<ul style="list-style-type: none"> Uses such as affordable housing could be included on potential development sites. However, the amount of revenue from sales requiring such uses would be significantly lower and could result in a net cost to the City
	Project Nexus	<ul style="list-style-type: none"> Purchasers of the land would benefit from the project

Hotel Fee / Tourism Tax		Percentage fee levied on area hotel occupancy, and/or District’s tourist attractions and historical sites (i.e., hotel charges, admissions to tourist attractions and events). Captures flood risk reduction benefits to tourists visiting attractions/historic sites in Lower Manhattan.
Financial Feasibility	Viability	<ul style="list-style-type: none"> • Would be in addition to significant existing NY City Hotel Room Occupancy Tax, NY State and City Sales Taxes, and NY State Hotel Unit Fee
	Size	<ul style="list-style-type: none"> • Large potential revenue pool – approximately 14.6 million tourists visited Lower Manhattan in 2018; tourism industry was impacted by COVID-19 but has already started to recover • Depending on tax structure, actual revenues may be limited – estimated that only 15% of Lower Manhattan visitors stayed in area hotels in 2018
	Timing	<ul style="list-style-type: none"> • Ongoing revenue stream based on tax payments
	Predictability	<ul style="list-style-type: none"> • As revenues are based on local hotel / tourism demand, actual levels are likely to be variable over the long term
Implementation Feasibility	Legal/Other	<ul style="list-style-type: none"> • May require state implementing legislation depending on how it’s implemented
Equity	Fairness	<ul style="list-style-type: none"> • As costs of additional taxes would likely be paid by tourists, or passed along to tourists, this would avoid an additional cost burden on local residents or businesses
	Project Nexus	<ul style="list-style-type: none"> • If implemented specifically in project area, there is strong alignment between beneficiaries of protected Lower Manhattan tourist attractions and tourism industry payers, however could also make area hotels less competitive
Sales tax increment		An incremental sales tax
Financial Feasibility	Viability	<ul style="list-style-type: none"> • A substantial legislative effort would be required
	Size	<ul style="list-style-type: none"> • Resilience project precedents include a 1% sales tax (Broward County, FL) and a 1% dedicated tax (City of Fargo, ND)
	Timing	<ul style="list-style-type: none"> • Ongoing revenue stream
	Predictability	<ul style="list-style-type: none"> • Dependent on local economic cycles
Implementation Feasibility	Legal/Other	<ul style="list-style-type: none"> • Would require changes to the NY State tax law
Equity	Fairness	<ul style="list-style-type: none"> • Likely to create an additional affordability burden on citywide taxpayers • Depending on price sensitivity, potential any negative economic externality that may impact low-income populations
	Project Nexus	<ul style="list-style-type: none"> • Impact on citywide taxpayers would extend beyond project beneficiaries

Tax Increment Financing (TIF) / Value Capture		Uses the incremental tax revenue associated with an increase in property values following public improvements to service bonds issued to pay for the improvements.
Financial Feasibility	Viability	<ul style="list-style-type: none"> • Difficult to distinguish increases in property values associated with new infrastructure from overall market appreciation • Would provide a conceptually aligned but uncertain revenue stream
	Size	<ul style="list-style-type: none"> • Highly dependent on the size of the district from which the incremental tax revenues are obtained and the market conditions
	Timing	<ul style="list-style-type: none"> • Only accessible after an increase in assessed property values is realized • Long-term revenue stream
	Predictability	<ul style="list-style-type: none"> • Subject to substantial uncertainty, as revenues would be dependent on actual increases in assessed property values after implementation of the project
Implementation Feasibility	Legal/Other	<ul style="list-style-type: none"> • Permitted under current NY State enabling legislation, but requires establishment of a TIF district • A TIF-like value capture structure was used to fund local improvements at Hudson Yards
Equity	Fairness	<ul style="list-style-type: none"> • In theory captures only incremental value due to new public improvements, but may create impression of diversion or “capture” of property tax revenues that otherwise would have accrued to the City’s overall budget for other uses
	Project Nexus	<ul style="list-style-type: none"> • Potentially strong alignment as a TIF structure is designed to only capture the incremental value resulting from the project.
Water/sewer fee surcharge		Surcharge on existing water and sewer utility fees, potentially varied based on flood risk exposure
Financial Feasibility	Viability	<ul style="list-style-type: none"> • Would provide a sizeable, predictable, and conceptually aligned revenue stream • Successful track records of revenue bond issuances by the NYC Municipal Water Finance Authority (NYW) in relation to standard water and sewer fees • Further legal review would be needed to determine if legislation is required to expand the purpose of the NYW
	Size	<ul style="list-style-type: none"> • Dependent on structure of surcharge and allocation mechanism.
	Timing	<ul style="list-style-type: none"> • Potential long-term revenue stream
	Predictability	<ul style="list-style-type: none"> • Potentially highly predictable, subject to variability due to underlying utility costs and usage
Implementation Feasibility	Implementation	<ul style="list-style-type: none"> • Potential affordability concerns could make implementation challenging • Would require approval by the NYC Water Board
Equity	Fairness	<ul style="list-style-type: none"> • Potential affordability constraints for citywide ratepayers – however, impact could be mitigated through the structure of the surcharge
	Project Nexus	<ul style="list-style-type: none"> • Low alignment between citywide ratepayers and project beneficiaries, which may raise equity concerns.

Utility surcharge: Telecom / Energy		Surcharge on fees for non-water utilities as an alternative or supplement to water/sewer surcharge
Financial Feasibility	Viability	<ul style="list-style-type: none"> Large potential revenue stream, but challenging implementation pathway and limited conceptual link to project goals
	Size	<ul style="list-style-type: none"> ConEd and National Grid raised \$1 billion in 2014 and \$245 million in 2016, respectively, through rate case proposals intended to fund their own resiliency-oriented system improvements
	Timing	<ul style="list-style-type: none"> Potential long-term revenue stream
	Predictability	<ul style="list-style-type: none"> Highly predictable if based on a set surcharge rate, although potentially subject to variability due to underlying utility costs and usage
Implementation Feasibility	Legal/Other	<ul style="list-style-type: none"> Would require coordination with utilities implementing the surcharge Would require approval by the NY Public New York Public Service Commission, including a public comment period
Equity	Fairness	<ul style="list-style-type: none"> Potential affordability constraints for citywide utility customers
	Project Nexus	<ul style="list-style-type: none"> Low alignment between citywide utility customers and project beneficiaries Low conceptual alignment between non-water utilities and flood mitigation benefits