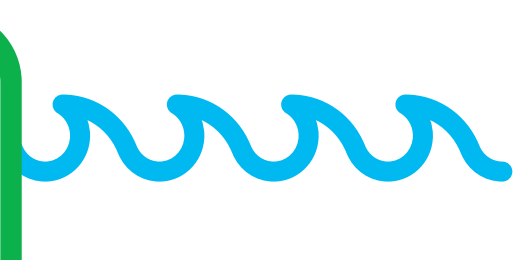
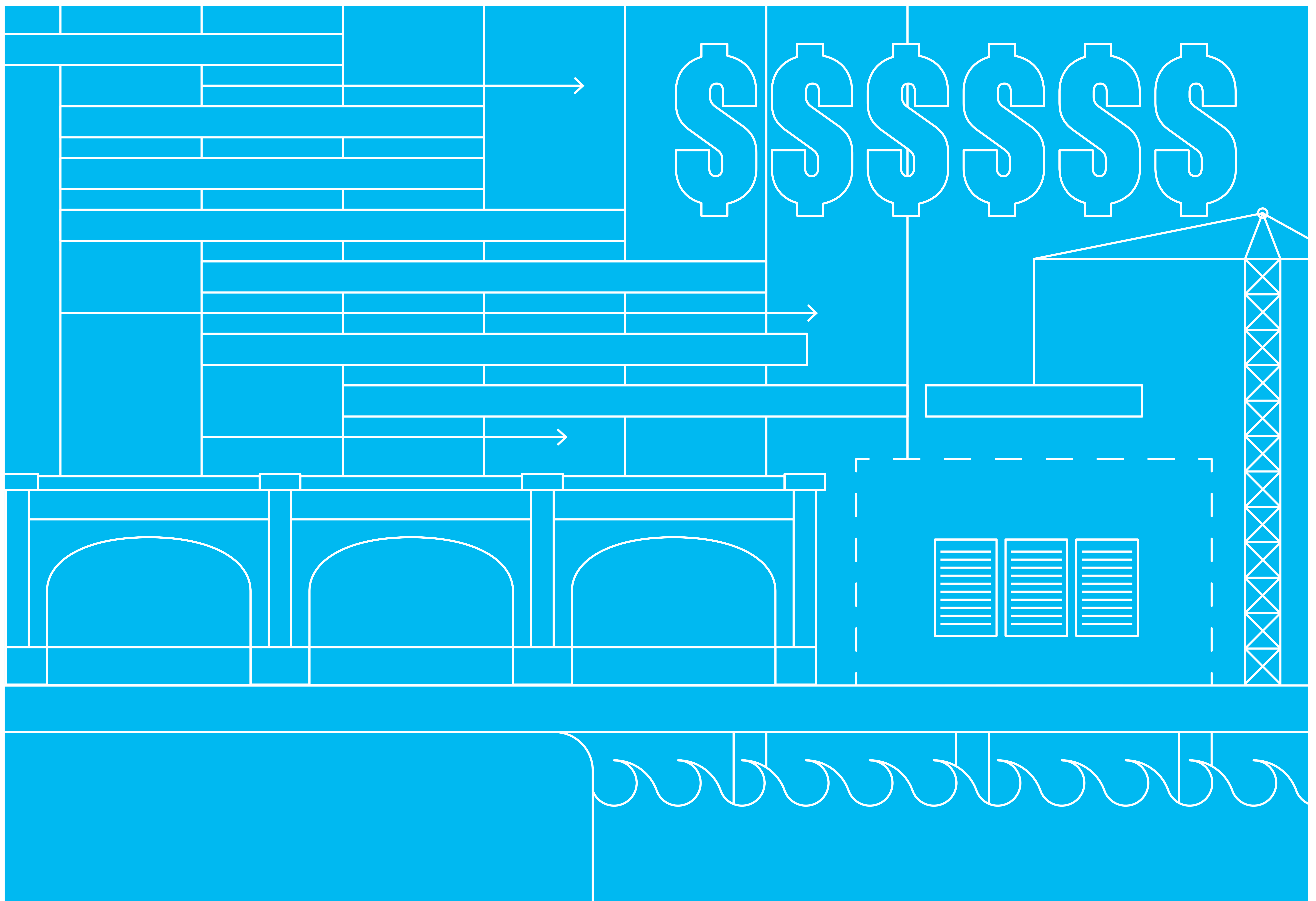


# How to implement Resilience+

**Implementing this plan will require the City to advance an extensive regulatory and permitting process with local, state, and federal agencies, secure funding, and construct a project of monumental scale and complexity.**

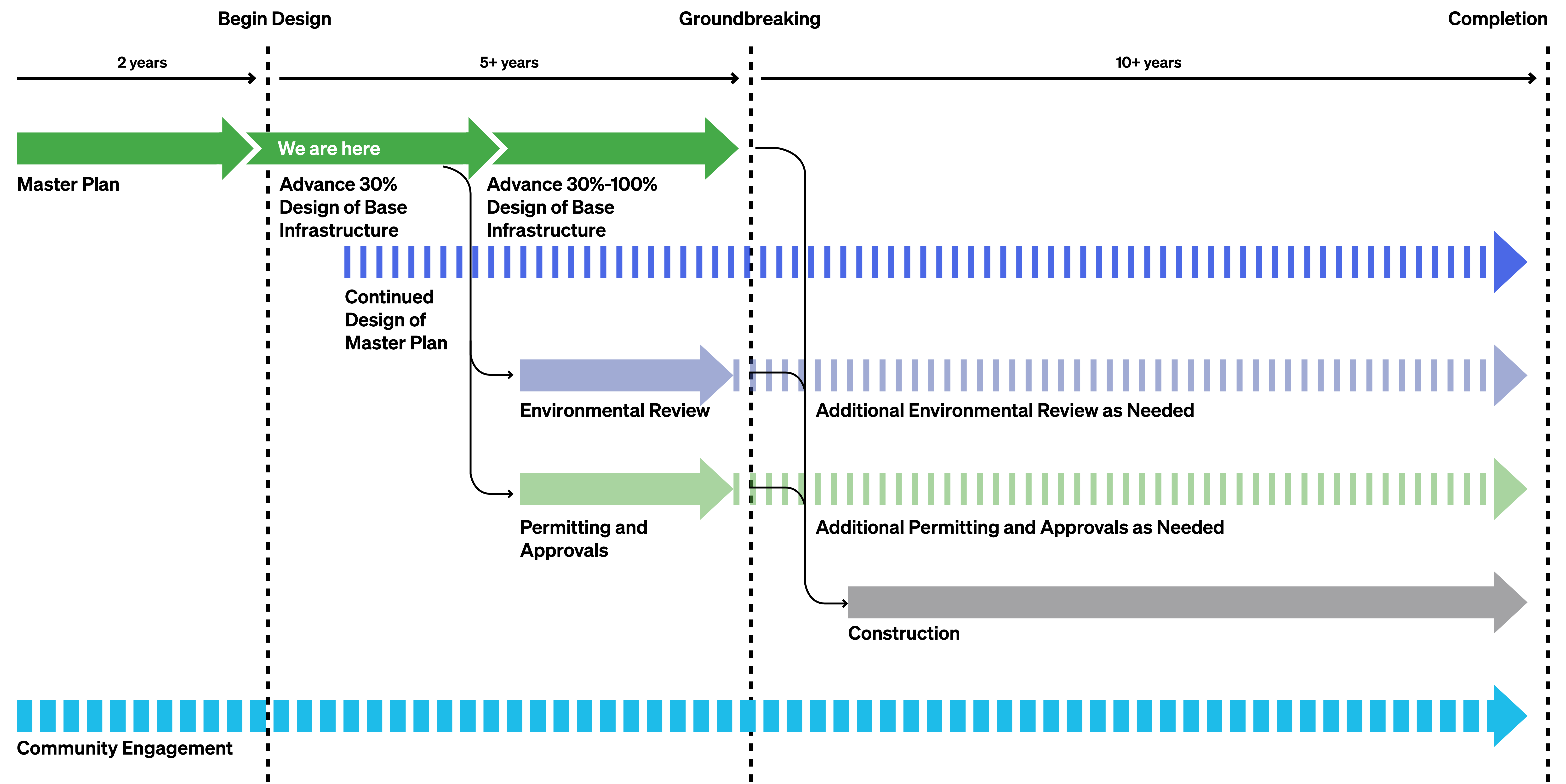




# To realize this bold vision for the 21st Century, the project timeline and phasing will be critical.

To make this plan into a reality, the City will need to advance an extensive regulatory and permitting process with multiple state and federal agencies, secure funding, and phase and construct

not one project, but a series of interconnected projects along this one-mile stretch of shoreline.



- Construction will need to manage several trade-offs, balancing speed, cost, and degree of disturbance.
- Phasing can be broken down by geography to ensure the entire shoreline does not become unusable at once and that there are temporary tie-ins to higher ground in the meantime.
- Phasing will be inherently flexible to account for permitting and mitigation efforts related to shoreline extensions.
- The City participates in an Aquatic Resources Advisory Committee, which is convened by the US Army Corps of Engineers, to understand how the FiDi & Seaport Climate Resilience Plan can minimize impacts while still achieving project goals.



Construction of Belt Parkway Bridge in Gerritsen Beach, Brooklyn (Photo Credit: Arcadis)

## Governance Strategies

The City will need to identify an existing agency or create a new governance entity that can ensure that implementation moves forward. Governance can take many forms depending on the specific needs of the project.

Entity Type	Description	Advancing Design & Permitting	Advocacy	Funding & Financing	Capital Construction	Operations & Maintenance
City Agency	Existing City-agency management.	<b>Moderate Alignment</b> Can procure and contract a design team. Can conduct community engagement. Has the expertise and ability to coordinate and advance pre-construction processes.	<b>High Alignment</b> Can advocate for legislation / policy.	<b>Moderate Alignment</b> Can access city capital and channel federal or state funding.	<b>Moderate Alignment</b> Have staff with expertise to oversee capital construction, but capacity may be limited for a project of this scale.	<b>Moderate Alignment</b> Organizational capacity would need to be created and could require an amendment of the City Charter for authorization.
Public Benefit Corporation or other public authorities	State-controlled public authorities, with one or more board members appointed by the Governor.	<b>High Alignment</b> Can procure and contract a design team. Can hire staff to coordinate and advance pre-construction processes.	<b>Moderate Alignment</b> Have restrictions around advocacy for legislation / policy.	<b>High Alignment</b> Has bonding authority and can raise private funds. Can also access City capital and channel federal or state funding.	<b>High Alignment</b> Can hire dedicated staff with expertise to oversee capital construction.	<b>High Alignment</b> Can hire appropriate personnel for O&M.
Local Development Corporations (LDC)	A nonprofit corporation that is created or sponsored by a local government.	<b>High Alignment</b> Can procure and contract a design team. Can hire staff to coordinate and advance pre-construction processes.	<b>Low Alignment</b> LDCs cannot advocate for legislation / policy.	<b>High Alignment</b> Has bonding authority and can raise private funds. Can access City capital and channel federal or state funding.	<b>High Alignment</b> Can hire dedicated staff with expertise to oversee capital construction.	<b>High Alignment</b> Can hire appropriate personnel for O&M.





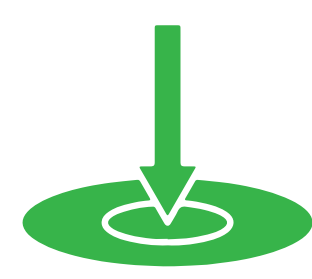

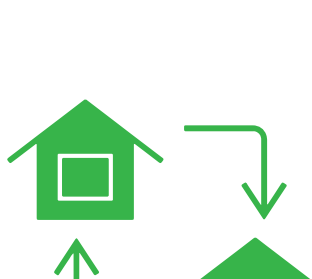

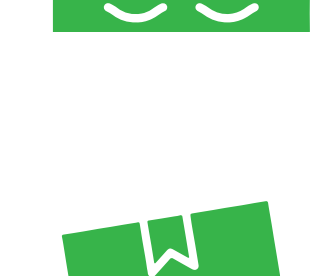


# This project will prevent \$11B in economic losses.

Implementing the 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). We estimate that the cost to construct the project will range from approximately \$5 to \$7 billion dollars.



Construction of the Domino waterfront park in Williamsburg, Brooklyn (Photo Credit: Arcadis)

When complete, this project would avoid \$11B in losses over its life span. This includes\*:

-  **\$4B** in direct economic impacts to businesses in the study area
-  **\$4B** in direct & induced economic impacts to businesses within the NY metro area
-  **\$2B** in relocation costs
-  **\$910M** in building damages
-  **\$450M** in contents damages
-  **\$160M** in social disruption, including health costs from injuries and mental stress, and lost income due to health issues
-  **\$3k** in losses due to emergency asset function disruption

\*Represents present value of direct, indirect, and induced losses with 6.25% discount rate.

# We will pay for the project with multiple sources.

Funding the master plan will require significant government investment and no single funding source will be enough to cover estimated costs. In addition to existing funding sources such as federal grants, the City is considering funding opportunities that could emerge from new

legislation and allocations from surcharges and taxes. In addition to capital construction costs, the City will need to identify funding sources to cover ongoing operations and maintenance (O&M) costs to avoid depleting City funds for other operational obligations.

Funding Source		Opportunities	Challenges
Existing Funding Sources	US Army Corps of Engineers (USACE) Civil Works Program	Represents one of the largest sources of funding, with potential to fund <b>up to 65% of the flood defense infrastructure</b> .	Requires an extensive process, including congressional approval and appropriations. Will impact local control over design and timing.
	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.
	Capital Investment Grant	Federal Transit Administration grant program that could fund <b>up to 60 - 80% of eligible transportation costs</b> related to ferry infrastructure.	Program is highly competitive, with limited precedents for ferry projects.
	Infrastructure for Rebuilding America and Rebuilding American Infrastructure with Sustainability and Equity 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.
New Funding Sources Studied	New York State Environmental Bond Act	The Bond Act, passed in 2022, introduces a <b>potential new source of funding</b> for resilience-focused projects.	The available funding will likely be highly competitive with small caps relative to a project of this size.
	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.
	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.
	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.