Final Report and Recommendations on the Revitalization of the South Brooklyn Waterfront



NYU Wagner Capstone x Councilmember Alexa Avilés





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We are grateful to our community partners, collaborators, and stakeholder interviewees:

Friends of Fort Defiance Southwest Brooklyn Industrial Development Corporation PortSide NewYork Red Hook Business Alliance Harbor Middle School Red Hook Initiative Eymund Diegel, New York City Department of Transportation

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Executive Summary

A wetlands park can enhance the public access and environmental resilience benefits of the South Brooklyn waterfront. This report examines the ecological, social, and economic benefits of transforming an unused parcel of land in Red Hook, Brooklyn, into a natural flood buffer and recreation space. The report draws on expert interviews and community input in the context of a proposal by the NYC Economic Development Corporation.

We recommend that Councilmember Avilés support the conversion of a Red Hook waterfront property into a wetlands park that integrates nature-based design, community priorities, and maritime revitalization efforts. Our four key findings are as follows:

A wetlands park, complemented by broader efforts at nature-based environmental resilience, can deliver cost-effective flood mitigation and enhance biodiversity.

Red Hook residents emphasize the need for equitable park access, protection from green gentrification, community-driven programming, and local stewardship.

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A sustainable financing strategy could use any of, or a mixture of all of, public grants and loans, mitigation banking, localized taxation strategies, and community-led conservancy models. To avoid displacement and ensure longterm equity, funding should prioritize community commitments over private development and engage businesses that would benefit from local revitalization.

The park should align with broader efforts to revitalize Red Hook's working waterfront. Integrating park development with upgrades to the Brooklyn Marine Terminal would create opportunities for waterfront engagement through the park and complement new sustainable freight infrastructure at the terminal.

Wetlands Parks and Nature-Based Solutions

Red Hook's waterfront faces a pressing need for transformation due to increasing climate threats, rising sea levels, and intensifying storms. The area's industrial past, combined with its peninsular characteristics and topography, make it particularly vulnerable to flooding, as seen during Hurricane Sandy in 2012 and Hurricane Ida in 2021. Existing gray infrastructure, such as drainage systems and seawalls, have proven insufficient to manage extreme weather events on their own. Nature-based solutions (NbS) offer an alternative approach to flood prevention by restoring natural ecosystems like wetlands. Rewilded wetlands not only absorb stormwater and reduce coastal erosion but also contribute to biodiversity, improve water quality, and enhance community resilience.

Wetlands are a vital part of New York City's natural landscape and form a critical component of its ecosystem. The city contains between approximately 5,600 and 10,000 acres of wetlands, primarily in Jamaica Bay, Staten Island, and along Long Island Sound. Since the beginning of European settlement, it has lost 85% of its salt marshes, 99% of its freshwater wetlands, and many of its natural streams.

Despite this, wetlands continue to provide crucial ecological, economic, and social benefits. They improve water quality by retaining stormwater, sediment, nitrogen, and other nutrients while also acting as natural buffers against storm surges and local flooding. On average, each square mile of wetlands along the hurricane-prone Atlantic and Gulf coasts saves nearly \$1.8 million in storm damage annually (Glick, 2024).



Source: The Bridge, Brooklyn Business Journal



Graphic Provided by Eymund Diegel

1766 Bernard Ratzer Map Gowanus & Red Hook Marshes, Brooklyn

Red Hook is a small peninsula largely built on marshland, making it highly susceptible to storm surges and flooding. Over time, the neighborhood's waterways have been rerouted or paved over to make space for its warehouses and shipping yards. Yet subterranean water systems persist, contributing to serious drainage problems.

The literature demonstrates that strategically-integrated NbS can be highly effective for flood mitigation. Wetlands restoration, for example, acts as a natural buffer by absorbing excess water and dissipating storm surges before they reach inland areas. Studies indicate that NbS have been increasingly adopted in urban settings, with 74% of parks in major U.S. cities implementing green infrastructure for stormwater management (Li, 2024). However, the effectiveness of NbS is maximized when combined with gray infrastructure. Hybrid solutions, which integrate green elements with engineered systems like porous concrete, flood retention basins, and stormwater drainage networks, provide improved resilience (FEMA, 2023). For NYC, Hunter's Point South Park in Long Island City serves as a prime example of this approach. Its design combines marsh wetlands alongside a solid, cantilevered overlook.

62% of studies Vicarelli (2024) reviewed on wetlands found them to be more costeffective than engineering-based solutions for reducing disaster risks such as floods, storms, and erosion. 30% of wetland-related studies found NbS costeffective only under certain conditions, suggesting that context matters. For example, the shape of the land, slope, and natural water flow influence how well wetlands buffer water and reduce flood peaks. Also, wetlands surrounded by impermeable surfaces (like roads and buildings) might receive an excess of polluted runoff or face limited water inflow, reducing their ecological health. No study found wetlands or any other NbS to be less cost-effective than engineered solutions. One study by Barbier et al. (2013) estimated that wetlands in Southeast Louisiana provided hurricane protection valued at over \$23 billion during Hurricane Katrina. Another by Costanza et al. (2008) found that coastal wetlands in the U.S. reduce property damage from hurricanes by \$33,000 per hectare annually.

New York City has implemented several wetlands park projects that serve as useful models for Red Hook. Brooklyn Bridge Park, built on a former industrial site, successfully restored native habitats and introduced ecological initiatives such as oyster reef rehabilitation. However, its establishment was accompanied by subsidized private real estate development, rising property values, displacement concerns, and the risk of green gentrification. Bush Terminal Park in Sunset Park transformed contaminated land into a public green space with tidal pools and vegetated shorelines and was created through extensive brownfield remediation and community advocacy. Unlike Brooklyn Bridge Park, Bush Terminal Park's management shifted from a revenue-driven model to city funding.

Hunter's Point Park South. Source: Great Ecology

Recommendation 1: Utilize the UPS Site for a Wetlands Park

To translate these findings into action, we recommend developing a wetlands park in Red Hook. Given the neighborhood's vulnerability to flooding and the proven benefits of wetlands restoration as a NbS, the UPS site—located between Wolcott Street and Valentino Pier—represents a prime location. This site aligns with historical water pathways, shown below, and could serve as a natural flood buffer, reducing risks associated with extreme weather events.

Photo courtesy of Google Earth

Graphic Provided by Eymund Diegel

Developing a wetlands park on this site would not only help provide flood mitigation but also restore critical ecosystem functions. Hunter's Point South Park, for instance, intercepts, infiltrates, and evaporates 73% of average annual rainfall using permeable pavers and a biofiltration swale. It also increases flood storage capacity by approximately 557,800 gallons, accommodating up to a sixfoot storm surge event. Projects like this have been widely used in New York City and other urban settings, so their potential is supported by the literature. Although the UPS site is not a bulkhead and differs in landscape from Hunter's Point, its design should follow a similar hybrid approach—combining wetlands with porous infrastructure. A wetlands park could help prevent future expenditures like the \$560 million FEMA spent on resiliency repairs for Red Hook Houses after Sandy.

Brooklyn Marine Terminal Proposal. Source: EDC

While the development of a wetlands park represents a crucial step toward improving Red Hook's flood resilience, its relatively limited size approximately 59,000 square feet—may not be sufficient to protect the whole neighborhood on its own. Red Hook's historical waterways, many of which have been paved over or rerouted, continue to shape how water moves through the area. To fully address these risks, the wetlands park should be integrated into a broader system of engineered street creeks that mimic Red Hook's historic hydrological patterns.

In comparison, the Economic Development Corporation's (EDC) current proposal for part of the site (pictured left) offers even less capacity for managing coastal flooding. As we have mentioned, isolated wetlands parks may be less effective than those linked to larger natural systems. For this reason, we recommend the integration of street creeks.

Street creeks (see Appendix) are designed to mimic these historic waterways, meaning water follows ancient paths, or pre-existing drainage patterns, because it naturally flows downhill along the path of least resistance. Over long periods, these paths become etched into the landscape through erosion and sediment deposition. Street creeks would serve to redirect stormwater from streets into planted channels that allow for infiltration and slow water flow before it reaches drainage systems or bodies of water. Implementing street creeks in Red Hook, particularly in areas that historically contained marshland and streams, would complement the wetlands park by managing runoff more effectively and preventing localized flooding. Without this secondary system, excess stormwater may continue to overwhelm Red Hook's streets and infrastructure. limiting the overall effectiveness of the wetlands park.

Source: streetcreeks.org

The park would enhance biodiversity and create public green space, improving community well-being. Given Red Hook's industrial history, a brownfield remediation must be a key part of the project to ensure environmental safety. That said, considering what is known about this UPS site, the owners have likely remediated it after tearing down the old Ligerwood factory building. This might significantly reduce the cost of park construction.

Moreover, a well-designed wetlands park should be largely self-sufficient, requiring minimal long-term maintenance to ensure ecological sustainability. Effective wetlands management relies on civil engineering strategies, such as controlling water flow and salinity levels, to create conditions that support a balanced ecosystem. However, if a wetlands design necessitates frequent pesticide applications or continuous biological intervention to control invasive species, it suggests a fundamental flaw in its construction (ISCAP, 2016).

In contrast, the primary ongoing maintenance effort should be limited to the removal of trash and debris, as excessive ecological interference can disrupt the natural processes that allow wetlands to thrive, flourish, and be most effective in flood mitigation. This does not necessarily mean limiting foot traffic, as well-designed trails and pathways for people to enjoy the park can help minimize its impact. However, in some cases, restricting access to certain areas or seasons may be necessary to protect the habitat (USDA, 2007). Low-maintenance landscapes are crucial for the resilience of natural ecosystems, enabling them to adapt and sustain biodiversity over time. Extensive research supports the principle that wetlands should be given the opportunity to evolve with minimal intervention, allowing natural ecological processes to regulate species populations, nutrient cycles, and habitat structures.

Ultimately, by transforming the UPS site into a wetlands park and incorporating street creeks into surrounding infrastructure, Red Hook can build long-term resilience against climate change while simultaneously providing ecological and recreational benefits.

Concept: Fort Defiance Park Riparian Forest Pathway. Source: Friends of Fort Defiance

Community Needs

Resident Concerns: Access

Community members in Red Hook emphasize the importance of keeping the proposed wetlands park publicly accessible to all residents. Stakeholder interviews highlighted a history of limited accessibility to public spaces, especially for lower-income residents and communities of color. Residents cited examples such as the Domino Park model, where design and location contributed to a feeling of exclusivity, making it feel unwelcoming to long-term residents. As one community leader from the Red Hook Initiative (RHI) stated, "Anything being built out here and being called a park can't exclude the community." Schools like Harbor Middle School stress the need for free waterfront access for educational purposes, pointing out that despite Red Hook's location near Governor's Island, many students never visit due to transportation costs and lack of outreach. There is also a cultural barrier, with a community representative noting, "You can see that no Black and brown families use the ferry right now."

Resident Concerns: Gentrification and Affordable Housing

The potential for green gentrification was a recurring theme in stakeholder interviews. Many expressed fear that a revitalized waterfront could increase property values, leading to the displacement of low-income residents. This concern is reinforced by historical examples in New York City, where waterfront improvements have led to higher rents and an influx of wealthier residents. With public housing in Red Hook still in disrepair since Hurricane Sandy, many residents expressed frustration with the EDC's plan to develop 12,900 luxury housing units on the former Brooklyn Marine Terminal site rather than making much-needed repairs to Red Hook Houses.

Resident Concerns: Passive Space

Residents overwhelmingly support a park that prioritizes cultural, recreational, and educational uses over high-cost commercial development. Activities mentioned by residents included outdoor classrooms and interactive learning for youth, community and cultural events and waterfront recreation, e.g., kayaking. A representative from Harbor Middle School emphasized that a wetlands park should provide "a starting point for waterfront engagement" rather than just a passive green space. There is further opportunity for career training on the waterfront, with the park serving as a place to learn about New York City's maritime industries and deepen waterfront engagement more generally.

Resident Concerns: Top-Down Development

Perhaps no community priority was more stressed than their need to be heard itself. Several community members emphasized that long-term park maintenance was "very important" in determining their support for a wetlands park. Where outreach efforts exist, they often fail to reach key stakeholders, such as non-English speakers, public housing residents, and small business owners.

Recommendation 2: Ensure Constituent Involvement

For the wetlands park to see long-term success and installation, it must be shaped by and remain accountable to the Red Hook community. Residents have real concerns about exclusion, displacement, and disregard for their wants and needs. A truly community-driven approach must be taken throughout, from planning and construction to long-term maintenance.

Ensure Equitable Access

To avoid creating another public space that feels exclusionary, the wetlands park must remain publicly-owned and accessible to all residents. Community members emphasized the need to eliminate physical, financial, and cultural barriers to create an inviting and engaging space for current residents.

Address Gentrification Concerns and Affordable Housing.

Residents expressed fears that park development, if not handled thoughtfully, could contribute to green gentrification and the displacement of long-time residents. Development should proceed alongside policies that prioritize affordable housing and public investment over private real estate interests.

Create Spaces for Community-Centered Activities

Residents made clear their preference for a park that supports cultural events, youth education, and community-based recreation, rather than high-cost commercial uses. Local schools, nonprofits, and local businesses should be invited to host programming so the park remains a vibrant, inclusive space that reflects the values of Red Hook residents.

Sustained, Meaningful Engagement with Local Organizations

Engagement with these partners should extend beyond park development, and opportunities for long-term community involvement should be prioritized to build trust, accountability, and a strong sense of local ownership.

Possible Funding Streams

This section outlines various funding options for maintenance and operation of a public wetlands park, including taxes, grants, compensatory mitigation, and private donations. The strengths and limitations of each option will be discussed.

Special Assessment Tax

In addition to general revenue sources such as local property taxes, some municipalities employ special assessment taxes as targeted funding mechanisms. These taxes are levied on property owners in designated areas to finance projects that directly benefit them, such as green space conservation. Based on the "beneficiary-pays" principle, this approach can provide a sustainable funding source.

For example, Seattle has used this tax for urban forest restoration, while Boulder, Colorado, applied it to protect 45,000 acres of land (FasterCapital, 2024). Key challenges include ensuring tax equity and minimizing the burden on lowincome residents. Successful implementation requires transparent communication and flexible payment options. Community engagement is essential, and long-term conservation efforts can be supported through regular progress reports.

Tax Increment Financing (TIF)

TIF is a funding tool for economic development and redevelopment projects that captures increased tax revenues—such as higher property taxes and sales taxes—resulting from rising property values and new commercial activity. Typically authorized and regulated at the state level, the process begins when a local government designates an economically distressed or underutilized area as a TIF district. The projected increase in tax revenue is used to back TIF bonds, which are generally repaid over 20 to 30 years, though some jurisdictions allow for repayment periods of up to 50 years (CBC, 2017).

TIF is widely used across the country. For example, the Gallery Place project in Washington, D.C., which was launched in 2002, was financed through TIF. It achieved a positive cash flow in year 4 of the 25-year debt service schedule and reached its breakeven point in year 8 (DC OCFO, 2020). TIF allows local governments to invest in revitalization without raising general taxes. However, careful planning is necessary to ensure fiscal responsibility and equitable outcomes.

According to New York State's TIF legislation, the implementation process begins with the designation of the target area where blight exists, and where redevelopment would not be feasible "but for" the use of TIF (CBC, 2017).

This is followed by an assessment to establish both the existence of blight and the "but for" condition, the development of a district improvement plan, and approval by the local legislative body (in this case, the City Council). Once the prescribed legal steps are completed, TIF bonds may be issued, backed by the projected increase in tax revenue generated within the district.

TIF bonds can finance a variety of development types, including commercial, residential, and mixed-use projects. Unlike general obligation bonds, TIF bonds are secured by future revenue streams and do not require a full faith and credit guarantee from the municipality. However, the use of TIF in New York municipalities has been relatively limited. More commonly, municipalities employ PILOT (Payment in Lieu of Taxes) financing—a similar mechanism in which developers make negotiated payments in place of traditional property taxes. A notable example is the Hudson Yards redevelopment, which utilized this model partly because it allowed the city to offer tax abatements to attract investment (Fisher & Leite, 2020).

Nonetheless, the TIF approach is dependent on strong, market-driven growth and may not be suitable for projects aiming to provide long-term public benefits without immediate or substantial revenue returns. In the case of the proposed wetlands park discussed in this report, long-term revenue generation is uncertain. Moreover, community interviews suggest a strong demand for cultural and educational spaces, along with concerns about gentrification. In light of these factors, issuing bonds that would impose debt burdens on New York City may not be the most appropriate financing strategy.

Federal and State Grants

Funds can be raised through collaboration among federal, state, and city governments, as well as the private sector. While several parks in New York City such as Brooklyn Bridge Park and Hudson River Park—demonstrate how private investment has attracted businesses and revitalized neighborhoods, our proposal does not advocate for large-scale commercial development in Red Hook. Therefore, support from federal and local agencies should be prioritized over dependence on private capital.

One relevant example is Bush Terminal Park, a public park in New York City that was developed with a total of \$38 million in funding from federal, state, and city sources. This funding covered various costs, including the remediation of brownfield sites. Of this total, a \$17.8 million grant from the state—at the time the largest ever awarded for brownfield remediation in New York—was a key contribution (NYCParks, 2014). Potential grant opportunities will be further discussed below.

Compensatory Mitigation

Compensatory mitigation refers to actions undertaken to offset unavoidable adverse impacts on wetlands, streams, and other aquatic resources. Introduced in the United States during the mid-1970s, this program has evolved significantly over the past several decades. The primary agencies responsible for overseeing compensatory mitigation are the U.S. Army Corps of Engineers (USACE) and the Environmental Protection Agency (EPA), which jointly administer the program under Section 404 of the Clean Water Act. The U.S. Fish and Wildlife Service (FWS) also contributes to compensatory mitigation, particularly in cases involving impacts on endangered species and their habitats.

The overarching objectives of compensatory mitigation are to support the national objective of achieving "no net loss" in the area and function of wetlands and to offset the degradation of aquatic ecosystems (EPA, n.d.). Compensatory mitigation is typically implemented through one or more of the following methods:

<u>Restoration</u>: Re-establishing the natural or historical functions of previously existing or degraded aquatic resources.

Establishment: Creating new aquatic resources where none previously existed.

Enhancement: Improving the functional capacity of existing aquatic sites.

<u>Preservation</u>: Legally protecting existing aquatic resources to prevent their degradation.

Source: The Wetlands Trust

There are three primary mechanisms through which compensatory mitigation is implemented:

<u>Permittee-Responsible Mitigation</u>: The permittee (i.e. developer) is directly responsible for executing and ensuring the success of the mitigation project

<u>Mitigation Banks</u>: Large-scale, off-site mitigation projects operated by thirdparty entities. Developers may meet their mitigation obligations by purchasing credits from these banks, thereby transferring responsibility

<u>In-Lieu Fee (ILF) Programs:</u> Developers make payments to public agencies or nonprofit organizations, which then implement mitigation projects on their behalf

A specific example of an ILF program is The Wetland Trust's ILF program, which operates across 15 regions in New York State and has successfully conserved over 2,000 acres of wetlands (The Wetland Trust, n.d.). The potential application of mitigation banks in funding wetlands parks will be explored further below.

Conservancies

Another possible funding source might be donations from community members. Central Park serves as an example of a public-private partnership, where New York City collaborated with the citizen-founded Central Park Conservancy to revitalize the park. Notably, the conservancy provides approximately 85% of the park's \$46 million annual operating budget (Foderaro, 2013).

Donation-based models are often criticized for enabling private management of public lands. Moreover, some argue that to ensure parks are accessible to all residents, regardless of neighborhood income levels, direct municipal investment is preferable. However, establishing a park conservancy—which allows citizens to take an active role in managing parkland—could align with community needs for local engagement, if properly structured.

Source: Prospect Park Alliance

Recommendation 3: Use Innovative Funding Systems

This section presents recommendations for funding strategies related to the construction, maintenance, and operation of a wetlands park. Since each funding method has its limitations, a combination of multiple approaches should be employed.

Grants and Loans

A number of grant programs that might be used to fund resilient infrastructure and nature-based flood mitigation exist at the federal level:

<u>HUD Community Development Block Grant Mitigation Fund (CDBG-MIT):</u> Governments that have experienced a presidentially-declared disaster (i.e. Hurricane Sandy) can apply for grants for mitigating future damage from similar disasters through this program.

U.S. Army Corps of Engineers (USACE) Civil Works Program: USACE provides funding, design and construction resources for rewilding projects in New York City. One recent example of this is the Spring Creek North Park Ecosystem Restoration Project in Queens. After 24 years of planning, USACE will soon commence construction on this project which is now fully funded in collaboration with the NYC Parks and Department of Environmental Protection. For projects like these, federal and local funding sources are typically split 65% to 35%, respectively. In addition to the slow pace of planning, another potential drawback is USACE's complete control of the design and construction processes, which might impede local input.

<u>FEMA Hazard Mitigation Grant Program (HMGP)</u>: Two subgrants exist under the umbrella of HMGRP that could help to create and maintain a wetlands park: the Flood Mitigation Assistance Grant Program (FMA) and Building Resilient Infrastructure and Communities (BRIC).

<u>FEMA Safeguarding Tomorrow Revolving Loan Fund Program</u>: In addition to grants, FEMA also offers low-interest loans to local jurisdictions in order to finance disaster prevention and mitigation projects.

With ongoing uncertainty about federal funding from the new presidential administration, state funding sources might be more feasible to tap into in the short term.

<u>NYS Environmental Facilities Corporation Clean Water State Revolving</u> <u>Fund:</u> Provides low- or zero-interest loans for stormwater management projects.

<u>Clean Water, Clean Air and Green Jobs Environmental Bond Act Funded-</u> <u>Grants:</u> Three potential grant sources are funded by these state bonds: the NYS Resilient Watersheds Grant Program, the NYS Coastal Rehabilitation and Resilience Projects Program and the NYS Inland Flooding and Local Waterfront Revitalization Implementation Projects Program.

As noted earlier, the site we are assessing may require brownfield remediation. The following federal and New York State programs are potential sources of support:

<u>EPA Brownfields Program</u>: The U.S. Environmental Protection Agency (EPA) administers the Brownfields Program, with approximately \$232 million allocated for FY2025. Grants typically range from \$500,000 to \$4 million and are available to local governments and nonprofit organizations. These grants support the cleanup of sites contaminated by hazardous substances or petroleum products. (Duyshart and Yeung, 2024)

<u>New York State Brownfield Cleanup Program (BCP)</u>: Managed by the New York State Department of Environmental Conservation (NYSDEC), the BCP incentivizes the cleanup of contaminated sites through tax credits and other financial benefits. In 2024, 71 sites were newly enrolled, and 61 completed remediation (Day, 2025). Developers may receive significant tax credits for both cleanup and redevelopment costs, making the program a financially attractive option for land reuse projects.

It is important to note that the information presented in this report is current as of April 2025, and that grant requirements and other details may be subject to change.

Mitigation Banks

Based on existing initiatives in New York City, mitigation banks represent a promising and innovative approach to achieving no net loss of wetlands.

A notable example is the Saw Mill Creek Mitigation Bank, located on Staten Island, which is the first mitigation bank established in New York City. Its primary objective is to provide compensatory credits for impacts on intertidal wetlands, particularly those caused by coastal infrastructure development. This project is led by the EDC. It has successfully restored 54 acres of wetlands and offers mitigation credits to both public and private developers (NYCEDC, 2019). Furthermore, according to a 2024 report by USACE, a proposal to add 10.90 acres of wetlands to the existing Saw Mill Creek Mitigation Bank has been submitted for approval. If accepted, this expansion would increase the bank's total area to 79.84 acres (USACE, 2024). By purchasing these credits, developers can expedite the permitting process in designated areas, potentially reducing overall project costs.

Implementing a similar framework at the proposed wetlands park could enable efficient use of funds by financing restoration projects through pooled contributions from multiple development projects. Mitigation banks are especially effective at supporting large-scale restoration efforts by aggregating financial resources from a variety of sources.

In addition to enhancing ecological functions and improving water quality, wetland restoration also contributes significantly to flood mitigation and resilience against natural disasters—delivering both environmental and socioeconomic benefits.

Currently, Saw Mill Creek remains the only mitigation bank in New York City. Given the demonstrated success of this model, the establishment of a new mitigation bank in Red Hook should be seriously considered. Funding for restoration, maintenance, and management could be primarily secured through the sale of credits to developers undertaking nearby projects.

Source: EDC, Saw Mill Creek Wetland Mitigation Bank Credits

Funding from Commercial Areas

Special Assessments and Tax Increment Financing (TIF), if used effectively, can serve as mechanisms to generate revenue from commercial areas. While our recommendations aim to prevent gentrification, it is reasonable to expect local businesses—who stand to benefit from redevelopment—to contribute to its cost. To minimize the financial impact on individual renters, we recommend applying these mechanisms across the commercial areas of Red Hook. To ensure continued maritime industrial growth, maritime businesses should be excluded from any additional financial burden.

Both Special Assessments and TIF generally rely on the assumption that property values will rise over time. This can raise concerns about gentrification. In response to proposals suggesting the use of PILOT (Payment in Lieu of Taxes) agreements for high-end residential developments, some City Council members have expressed concern about the influx of capital linked to luxury housing. These concerns underscore the need for careful planning that prioritizes equitable growth and minimizes displacement.

In the case of Red Hook, however, the proposed wetlands park is not intended as a profit-generating investment. Rather, it is an urgent, preventative measure designed to protect the neighborhood from natural disasters and avoid future losses in property tax revenue.

Resident-Driven Park Conservation

As seen in examples from New York City—such as Central Park—communities can establish a park conservancy: a nonprofit organization led by local residents that raises funds through charitable contributions from individuals and businesses. A conservancy not only provides financial support but can also play a central role in the management and maintenance of the park. This model fosters a community-driven process that reflects local priorities and needs.

However, there are other important considerations. Private management of public spaces has at times led to exclusionary practices and a lack of accountability. To avoid this, we recommend that any conservancy established for the proposed wetlands park be provided with clear operational guidelines that promote inclusivity—for example, by de-emphasizing policing and ensuring access for all community members. Conservancies should also be required to develop a detailed community outreach plan in collaboration with local organizations. This will help ensure that residents of public housing feel welcomed and represented in the use and stewardship of the park.

Concept: Recreation Space for Fort Defiance Park. Source: Friends of Fort Defiance

A Community-Centered Funding Philosophy

The funding mechanisms outlined above reflect a diverse toolkit that can be tailored to the specific needs of Red Hook. However, what matters most is the underlying philosophy.

As our client put it, "The economic development model we are keen on is a circular model... that draws on the assets within the community and contracts with the community." This emphasizes reinvestment, accountability, and long-term benefits that remain rooted in the neighborhood. It is not just about delivering a park—it is about creating a circular economy and a place that reflects community values and collective resilience.

Broader Maritime Network

A wetlands park at the UPS site would fit seamlessly into plans for maritime industrial renewal at the Brooklyn Marine Terminal (BMT). The location is next to (but not part of) the BMT complex and would supplement any redevelopment plan with sustainable, easy-to-maintain climate resiliency infrastructure to ameliorate fear of flooding.

Even if a park were to be incorporated into the project, however, certain gentrification concerns might remain. Improvements to the local landscape could potentially contribute to rising land values and therefore indirectly foster displacement. Other fears pertaining to sewage and traffic were also expressed by community members: the high-rise residential buildings were seen as clogging Red Hook's already strained roadway and sewer infrastructure. Doubling the neighborhood's population with flood-zone highrises was considered both technically unfeasible and undesirable. Given these issues raised by local stakeholders, plans involving an EDC investment in real estate development ought to be countered with a proposal that prioritizes maritime industrial use.

Community-oriented proposals have been visibly popular at local meetings organized around the BMT planning process, and the desire for an emphasis on maritime investment was echoed by all participants in our stakeholder interviews. Calls for "public funding for public goods on public land" have been commonplace. But insofar as this redevelopment ought to be paired with the park planning process, integrating the public-facing programming of the two entities, the park and the BMT, will be useful in fostering awareness of the waterfront and maritime career paths among local youth. Nearby nonprofits like PortSide New York and Pioneer Works could hold large educational events at the park site. Meanwhile, the South Brooklyn Industrial Development Corporation has proposed docking sailing ships such as the Amistad and the Apollonia there.

Source: Waterfront Alliance

Source: New York Times

The former teaches children about African American maritime history, the latter serves as an example of zero-energy shipping vehicles still in use today. A large, clean public space might provide an ideal jumping-off point for youth engagement with the waterfront, and therefore a pipeline to well-paying maritime careers.

To accomplish this vision, the entirety of the working waterfront must be made fully functional again. Community partners advocating for industrial renewal took the following ideas into consideration:

- Existing EDC plans for BMT revitalization already include the conversion of Piers 8, 9A and 9B into a single, modern marginal pier to assist in the revitalization of the Red Hook Container Terminal
- Rather than dismantling Pier 7, local stakeholders have advocated that the container port be included in the maritime revitalization
- One option is a long-term, phased reinvestment, as occurred with the Brooklyn Navy Yard
- A phased process can address funding constraints by adapting the port to optimize existing facilities for the advent of the Blue Highway waterway freight program

Input from local business owners has enabled our community partners to draft a proposed first phase for this process using maritime clients that already operate at the BMT.

Recommendation 4: Integrate the Park with Maritime Network

A wetlands park can be included in even the most maritime-centric proposals for BMT redevelopment. The first phase of such a plan was sketched out by local organization PortSide NewYork using their extensive network of shipping industry contacts.

The "Phase One" plan PortSide proposes can be divided into two separate sections, each with completely distinct recommended modifications to built environment:

- BMT North: The area that stretches from Pier 10 to Pier 7
 - Create a marginal pier to replace Piers 8, 9A and 9B (per the EDC plan)
 - This is necessary for the modernization of the container terminal, central to the renewal of the working waterfront
 - Current EDC plans require the pier to be pushed out further from shore in order to reserve inland areas for housing
 - Create new buildings to house a crane shop and a customs facility
- Atlantic Basin: The area surrounded by Piers 10, 11 and 12
 - Three potential scenarios that involve either:
 - Moving the Ferry Homeport offsite
 - Moving PortSide to a rehabilitated Pier 12
 - Moving at least one other business currently docked on Pier 11

BMT North

- 1. Cold storage (Current tenant: Manhattan Beer)
- 2. Other, non-perishable cargo to go out by water or land
- 3. Waiting area for TransTech passengers & truck and micromobility drivers
- 4. Crane shop moves to near existing mechanic shop
- 5. New customs facility built up to Degraw Street to allow public access to a port overlook public space on the roof

The demolition of Piers 8, 9A and 9B to create space for a modern marginal pier is one part of the EDC's design that maritime-focused stakeholders generally agree with (though it should again be noted that EDC's housing-based designs have pushed the pier further out into the harbor than necessary in order to clear land for real estate).

The new marginal pier and Pier 7 would form a critical part of the Blue Highway program. Pier 7 (which recent EDC proposals have offered to dismantle) has the port's only cold storage for perishables and thus plays a unique and crucial role in Red Hook's maritime future. Maintaining this function would retain the pier's current tenant, Manhattan Beer. The portion of the pier that could be reserved for this function is labeled (1) on the previous page's diagram and the portion that would handle other types of cargo is labeled (2).

A number of startups have proposed to make use of a revitalized BMT for shipping freight. These include:

- Harbor Harvest
 US Coastal Service
- Zulu Associates Transtech Marine Company, a.k.a. ShipShares

The lower portion of the pier could be turned into a waiting area (3) for both workers and, potentially, ferry passengers. A flexible fleet of ships carrying, at various times, passengers or freight, could begin to operate at this pier, as proposed by ShipShares.

A rehabilitated Red Hook Container Terminal might also require new facilities. One example would be an updated crane shop and/or mechanic garage, which could be built as the first floor of a new flood-proof elevated office building for the terminal. A rough approximation of its positioning is labeled (4).

Another structure to build would be a new customs inspection facility (5). A building like this might add a publicly-accessible roof overlook to give residents and tourists a view of the coastline from the piers to the park. Creating community spaces, even tourist attractions like retail or dining, in buildings like these would not impede the functioning of the port, and other visual ideas (such as glass walls for industrial spaces, providing a view of everyday labor in a manner reminiscent of kitchens at Shake Shack) could make the port more exciting to walk near. The customs house would be ideal for a public observation deck because the point of access could occupy a portion of the port not guarded by checkpoints for MARSEC, the federal maritime security system.

Atlantic Basin

- 1. The Mary Whalen (PortSide NewYork flagship)
- 2. Remove inactive barges so active maritime use can occur here
- 3. Floating habitats PSNY Nature Center
- 4. PSNY youth kayaking/small boating area
- 5. Reinstall fendering to restore mooring space on the sides of these piers
- 6. Remove fences and concrete from to (re)create PortSide Park, a seating area with potted plants, string lights, umbrellas, summer sprinkler, kids toys and free library
- 7. PortSide programs & services inside 12,000 sq ft at south end of Pier 11 Shed (currently vacant)
- 8. Vane Line Bunkering homeport office & warehouse: 12,000 sq ft and (pink line) 200' of berth for tugs
 - a. If their barges get displaced from the area between Pier 7 and the former Pier 8, they must find another home (too large to fit in the Atlantic Basin)
- 9. Lehigh Maritime: 7,000 sq ft and (blue line) 300 linear feet for floating dry dock and other vessels
- 10. D&M Lumber: 120,000 sq. feet

The Atlantic Basin is home to PortSide NewYork's flagship (1), a still-functioning tanker known as the Mary Whalen. Few freight ships have been serviced by the Mary Whalen due to low traffic at the piers, but this situation could be improved with only a few minor modifications.

PortSide offered three proposals for the redevelopment of the basin. The first involves the removal of the Ferry Homeport installation to make more space for freight vessels. The Homeport has been criticized as cost-ineffective and drain on EDC subsidies by waterfront experts (Fox, 2025).

Recent moves by EDC suggest that it intends to renovate the Homeport (despite rarely acknowledging that the existing construction could be faulty). As a result, PortSide has also created two plans with minor alterations to supplement the first- one where the Mary Whalen moves to the corner of Pier 12 and one where another permanently-docked ship moves out to provide more berthing space. Repurposing part of Pier 12 (which is next to the UPS site) could potentially offer more opportunities for maritime-themed park programming. All plans begin with the removal of sedentary barges (2) from the inner corner there. This will not only open up space to service vessels, but also potentially introduce more recreational space without diminishing maritime use.

"Floating habitats" (3) and a designated kayaking areas (4) would attract people from the park to visit a more industrial area without diminishing its industrial usage. Likewise, the currently fenced-off area next to where the Mary Whalen is docked could be renovated into a small green space (6) dotted with low-cost recreational amenities.

Without the ferry traffic, Pier 12 could also help clear the path for the proposed Blue Highway freight network. Red Hook would become a conduit for this program, which intends to use East River shipping as a congestion-reducing alternative to intra-city trucking. Any craft able to dock at Pier 12 or further north could also stop by the park, as part of a program to boost awareness of maritime career paths.

The Atlantic Basin could itself become an educational space with the help of PortSide. To create a space where youth could see a maritime labor force in action would involve restoring mooring space (5) on the bottom of Pier 12 and the north side of the Atlantic Basin below Pier 10.

Existing maritime enterprises require more office space and berthing areas on Pier 11. As the diagram on the previous page shows, granting PortSide 12,000 square feet of office space (7), and 139,000 in total for businesses like Van Lane Bunkering (8), LeHigh Maritime (9) and D&M Lumber (10), would still leave some space for potential new clients in the Pier 11 building. Berthing space for ships is a different matter. The pilings dotting the pier would have to be removed to have adequate space for Vane Line and LeHigh vessels to dock.

- New PortSide headquarters in the rehabilitated Pier 12 shed

 Roughly the size of (7) in the previous diagram
- 2. The Mary Whalen would dock here if barges were removed
- 3. MARSEC gate must be moved from this area to facilitate pedestrian traffic
- 4. A parking complex here could free up space in the nearby lot

If the pilings, and, by extension, the Ferry Homeport are indeed undergoing repairs, the PortSide offices (labeled 1 in above diagram) and Mary Whalen (2) could move to the interior corner of Pier 12 once the barges are removed. This would be contingent on the nearby walkways (3) being opened up by MARSEC to the public. In order to facilitate the altered traffic at the site that would result, a nearby parking lot could be replaced with a garage (4).

Alternatively, if neither of these plans could be implemented, additional berthing space could be freed up by the departure of one of the permanently-docked ships on Pier 11. This by itself would be sufficient for the Mary Whalen to service small industrial vessels.

PortSide's plans constitute a more modest and less real-estate-centric program for mixing industrial use, recreational space and job creation than proposed EDC plans for convention centers and luxury hotels. Unlike the development plan proposed by maritime industrialist Jim Tampakis (Fock, 2025) its phased, conservative outlook is not as reliant on diverting the lion's share of revenues from new taxes or redirecting Last-Mile warehouse truck traffic. PortSide has advised that Blue Highway interaction with Last-Mile warehouses would function more smoothly outside the BMT complex, as Amazon has already purchased waterfront-facing warehouses elsewhere in the neighborhood (Verde, 2020).

With PortSide serving as the gateway to a thriving waterfront less than 1,000 feet from the UPS site, it will be possible to integrate in-depth education about maritime industrial careers into park programming. A wetlands park and a revamped local port should work hand-in-hand to develop disused areas of Red Hook in a benign and sustainable fashion.

Conclusion

The revitalization of the South Brooklyn waterfront through a wetlands park on the ideally-located UPS site represents a forward-thinking approach to climate resilience and community well-being. Expert insights confirm that preserving this land for ecological restoration can provide long-term environmental benefits, connections with a robust maritime industry, and equitable community access for much-needed public space. By leveraging policy tools, strategic funding, and community partnerships, Councilmember Avilés can play a pivotal role in advancing this vision for her constituents. With decisive action, the Red Hook waterfront can be transformed into a sustainable asset that serves both current and future generations.

Appendix

Ate Atema, architect and founder of Atema Architecture and Environmental Design, developed the street creeks concept as a nature-based solution for managing urban stormwater by reconnecting cities with their historic water pathways. Street creeks are a stormwater management design that draws inspiration from historic waterways and natural hydrological flows. Functioning as vegetated bioswales embedded within the urban streetscape, street creeks reintroduce natural drainage patterns by capturing, filtering, and directing stormwater runoff along its original downhill pathways—ultimately conveying it to larger bodies of water, such as creeks or coastal zones.

The image above illustrates a typical first flush catchment and cleaning system, the technical foundation of a modern street creek. This system mimics ecological processes while addressing the challenges of urban runoff and pollution. During a rain event, the first flush—the initial 0.5 to 1.5 inches of rainfall—often carries the highest concentration of surface pollutants from roads, such as oil, heavy metals, and debris. The street creek system is engineered to intercept and treat this runoff through several interconnected components:

Additional Aspects to Street Creek Systems:

- First Flush Cistern: Positioned below the street surface at the low point of each block, this underground chamber captures and temporarily stores the initial runoff. This cistern helps isolate the most polluted water, preventing it from reaching natural water bodies untreated.
- Bioswale: Once the first flush is captured, subsequent runoff is routed into a surface-level bioswale. This vegetated channel acts as a natural filter, using soil, plants, and microbes to break down contaminants and absorb excess nutrients. The bioswale also allows water to infiltrate slowly into the ground, recharging groundwater and reducing pressure on the city's drainage infrastructure.
- Pervious Planting Zone: Adjacent to sidewalks, this zone absorbs runoff from pedestrian areas, reducing pooling and promoting infiltration at the street level.
- Street Channel & Cistern Inlet: The visible surface channel collects excess runoff from the street and directs it toward a cistern inlet. Once the first flush cistern is full, clean runoff is allowed to proceed over the inlet and into the creek or designated outflow path.
- Catch Basin: A key maintenance feature, this basin collects floatables and larger debris from the street before water enters the drainage system, preventing clogging and pollution downstream.

By combining engineered and natural components, street creeks deliver hybrid infrastructure benefits: they manage flooding, treat water, and support biodiversity. Importantly, they restore pre-urban hydrology by reactivating the "memory" of ancient drainage paths—often buried beneath the city's paved surfaces. In Red Hook, integrated alongside a wetlands park, this system would slow, treat, and redistribute runoff across the neighborhood, reducing localized flooding and bolstering climate resilience.

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