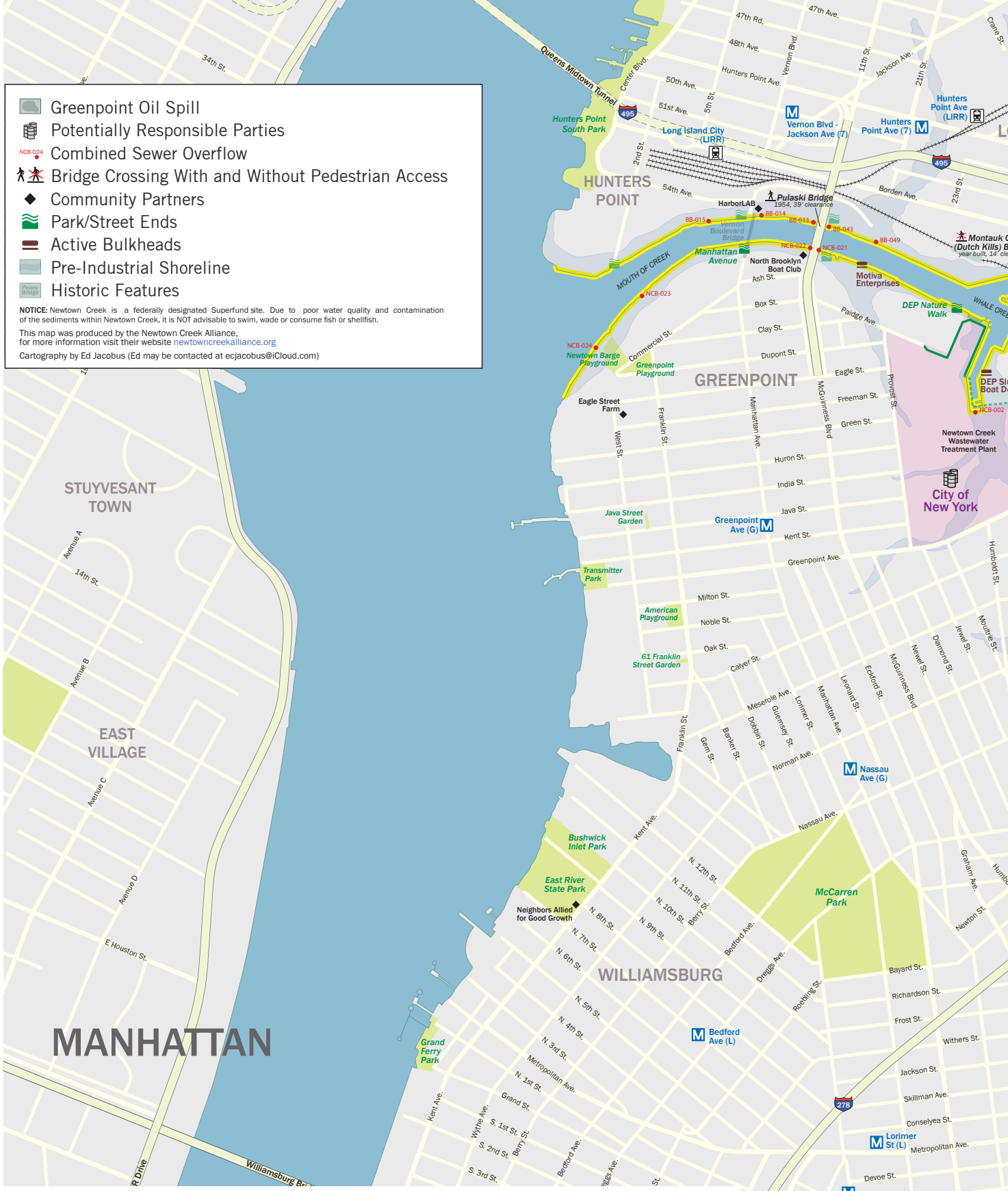
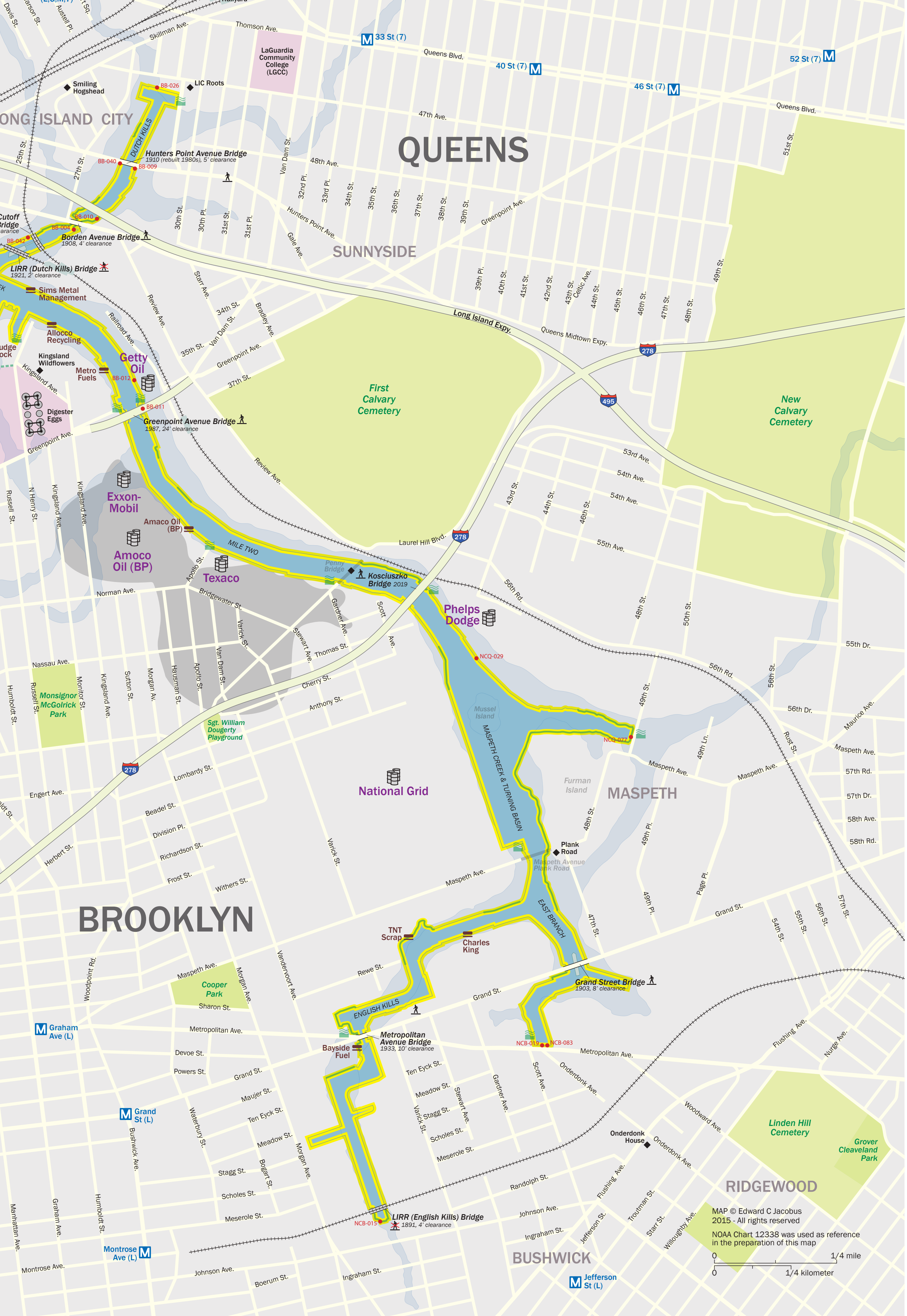
NEWTOWN CREEK 2018
VISION PLAN

RIVERKEEPER
NY's clean water advocate

NCA
NEWTOWN CREEK ALLIANCE


Greenpoint Oil Spill
Potentially Responsible Parties
NCB-024 Combined Sewer Overflow
Bridge Crossing With and Without Pedestrian Access
Community Partners
Park/Street Ends
Active Bulkheads
Pre-Industrial Shoreline
Historic Features
NOTICE: Newtown Creek is a federally designated Superfund site. Due to poor water quality and contamination of the sediments within Newtown Creek, it is NOT advisable to swim, wade or consume fish or shellfish.
This map was produced by the Newtown Creek Alliance, for more information visit their website newtowncreekalliance.org
Cartography by Ed Jacobus (Ed may be contacted at ecjacobus@iCloud.com)
Queens Midtown Tunnel
Hunters Point South Park
Long Island City (LIRR)
HUNTERS POINT
Vernon Blvd - Jackson Ave (7)
Hunters Point Ave (7)
Hunters Point Ave (LIRR)
Pulaski Bridge
1954, 39' clearance
HarborLAB
Vernon Boulevard Bridge
Manhattan Avenue
North Brooklyn Boat Club
MOUTH OF CREEK
Motiva Enterprises
DEP Nature Walk
Montauk C (Dutch Kills) B
Newtown Barge Playground
Greenpoint Playground
GREENPOINT
Eagle Street Farm
Newtown Creek Wastewater Treatment Plant
City of New York
STUYVESANT TOWN
EAST VILLAGE
Java Street Garden
Greenpoint Ave (G)
Transmitter Park
American Playground
61 Franklin Street Garden
Nassau Ave (G)
Bushwick Inlet Park
East River State Park
Neighbors Allied for Good Growth
McCarren Park
WILLIAMSBURG
Bedford Ave (L)
Grand Ferry Park
MANHATTAN
Lorimer St (L)
Metropilitan Ave (G)
Marcy Ave (J,M,Z)
Hewes St (J,M)
Williamsburg Br
1,000 ACRES OF OPPORTUNITY


QUEENS
LONG ISLAND CITY
SUNNYSIDE
MASPETH
BROOKLYN
RIDGEWOOD
BUSHWICK
33 St (7)
40 St (7)
46 St (7)
52 St (7)
LaGuardia Community College (LGCC)
Smiling Hogshead
LIC Roots
DUTCH KILLS
BB-026
BB-040
BB-009
Hunters Point Avenue Bridge
1910 (rebuilt 1980s), 5' clearance
BB-010
BB-004
BB-042
Borden Avenue Bridge
1908, 4' clearance
LIRR (Dutch Kills) Bridge
1921, 2' clearance
Sims Metal Management
Allocco Recycling
Kingsland Wildflowers
Metro Fuels
Getty Oil
BB-012
BB-011
Digester Eggs
Greenpoint Avenue Bridge
1987, 24' clearance
Exxon-Mobil
Amaco Oil (BP)
Amoco Oil (BP)
MILE TWO
Texaco
Penny Bridge
Kosciuszko Bridge 2019
Phelps Dodge
NCQ-029
Mussel Island
MASPETH CREEK & TURNING BASIN
NCQ-077
Furman Island
National Grid
Plank Road
Maspeth Avenue Plank Road
EAST BRANCH
TNT Scrap
Charles King
Grand Street Bridge
1903, 8' clearance
ENGLISH KILLS
Metropolitan Avenue Bridge
1933, 10' clearance
Bayside Fuel
NCB-019
NCB-083
LIRR (English Kills) Bridge
1891, 4' clearance
NCB-015
Onderdonk House
First Calvary Cemetery
New Calvary Cemetery
Monsignor McGolrick Park
Sgt. William Dougerty Playground
Cooper Park
Linden Hill Cemetery
Grover Cleaveland Park
Graham Ave (L)
Grand St (L)
Montrose Ave (L)
Jefferson St (L)
Long Island Expy.
Queens Midtown Expy.
Queens Blvd.
Thomson Ave.
Skillman Ave.
47th Ave.
48th Ave.
Greenpoint Ave.
Hunters Point Ave.
Laurel Hill Blvd.
Maspeth Ave.
Grand St.
Metropolitan Ave.
Flushing Ave.
Norman Ave.
Nassau Ave.
Kingsland Ave.
Varick St.
Scott Ave.
Gardner Ave.
Morgan Ave.
Vandervoort Ave.
Onderdonk Ave.
Woodward Ave.
278
495
MAP © Edward C Jacobus 2015 - All rights reserved
NOAA Chart 12338 was used as reference in the preparation of this map
0
1/4 mile
0
1/4 kilometer

Welcome

On a recent patrol out on Newtown Creek, aboard Riverkeeper's patrol boat, the *R. Ian Fletcher*, scientists, attorneys, and advocates gathered that day with a film crew to showcase the differences a decade has made to the Creek. Riverkeeper Boat Captain John Lipscomb was at the helm telling stories of his first patrols up in the Creek more than fifteen years ago. Atop the engine hatch, Willis Elkins from Newtown Creek Alliance was showing old photos of oil spills, tires, cars, and sewage coating just about everything in, along, and around the Creek.

Old maps from the early days of the Creek's industrialization were on display, as were maps, charts, and upland and shoreline redesigns of planning processes launched over the past 10 years to try to figure out the best way forward for the Creek. As we turned from those historic documents to the environment – built and natural – some of those same story lines were before us. Active oil seeping into the Creek next to a waste transfer facility; sewage building up on the sewer-side of a trash boom; sheet-pile bulkheads being installed mid-Creek – further channelizing this already hard-edged former wetland. We were also on the Creek the same day as researchers studying the oil that bubbles up from contaminated sediments that coat the bottom of the Creek and its tributaries.

Between and among these echoes of industrialization and bad decision making, however, we repeatedly spotted the unmistakable signs of resilient life. Birds, fish, mussels, trees, and marsh grasses were everywhere we turned; the cracks of crumbling concrete were providing safe harbor for innumerable microhabitats; and the trash booms were the perfect perches for birds looking to grab a fish for an afternoon meal.

We are in the middle of a transformative time for Newtown Creek. While the past 150 years have seen the Creek woefully burdened by illegal (and legal) dumping, written off by surrounding communities, and treated as a receptacle for billions and billions of gallons of sewage, the tides may finally be turning for Newtown Creek.

Over the past 15 years, a number of major achievements have largely fueled this turnaround. From legal action against ExxonMobil (triggering cleanup of the Greenpoint Oil Spill) and the City's upgrades at the Newtown Creek Wastewater Treatment Facility (making it the City's largest and most modernized sewage plan) to the listing of the entire Creek as a Superfund site in 2010, the oil, sewage, and toxic history of the Creek has been making incrementally slow, yet steady forward, progress.

The Superfund cleanup, led by the US Environmental Protection Agency, promises to absolve threats to ecologic environmental and human health from both historically contaminated sediments and new sources of toxic pollution. State clean water processes, shaped largely by the City's Department of Environmental Protection, are discussing how – and to what extent whether – to reduce sewage pollution entering the Creek. Citizen activists and city officials have been testing new designs for bringing wetlands back to the narrow edges of the Creek while larger ecosystem restoration plans are being developed by federal agencies.

With these efforts underway, we are at a place where we can imagine, plan for, and create more than just the bare minimum – where we can aim for water quality that doesn't just meet standards, but exceeds them; where contamination isn't just controlled, it's completely removed and prevented; where we can have working waterfronts that support jobs, a healthy ecosystem and resilience all together. Newtown Creek can be more than just clean; it can be an asset and a resource – a source of pride for the surrounding communities, a model for the world.

On the Riverkeeper patrol boat with the film crew that afternoon, the low tide exposed mussels, sea grasses, mud flats, and muck. As the camera panned across Maspeth Creek, we asked everyone on the boat to imagine a restored shoal in the Turning Basin, restored marshes in Maspeth, and public parks dotting the waterfront providing shade and open space for workers on their lunch breaks. We realized then that to truly set a benchmark or develop a plan for achieving lofty goals for this industrial cityscape, we would have to help the public (and elected officials) see what we saw – what the Creek might look like.

Over the past few decades a number of efforts have been launched to do just that – visions, plans, and reports have been created by and with the communities, industries, and agencies around the Creek. Those efforts should not be lost, and were included in this Vision. Indeed, those reports were what made the Newtown Creek Superfund Community Advisory Group develop its first set of Community Vision Principles in 2015 that gave rise to the process we are reporting on here. We believe that this report successfully builds on these previous efforts and offers inspiring options for creating a future Newtown Creek that regenerates ecological value, protects and strengthens the surrounding economic activity, and increases access and connection for residents and workers alike.

Visioning for an area as large and dynamic as Newtown Creek, though, must be an ongoing and evolving process. As the sewage is captured, the contamination is dredged, and the wetlands are restored, we look forward to continuing to revise, adapt, and amend this blueprint with the community. We hope that as you read this report you think of more ideas and connections to bring to the community. Whether you are a waterfront landowner looking for a more resilient bulkhead or a homeowner seeking to capture stormwater to help reduce the sewage discharging into the Creek, this effort is an all-hands-on-deck endeavor. We look forward to working with you.

For a clean water future,

Riverkeeper & Newtown Creek Alliance
January 2018

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NY's clean water advocate

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EXECUTIVE SUMMARY

Executive Summary

Throughout the visioning process, there were few messages that resounded with the community as clearly as the need for better connections between the communities and the waterways.

In early 2015, the Newtown Creek Superfund Community Advisory Group (CAG), met at LaGuardia Community College to develop a set of guiding principles and thereby establishing a framework for determining the future of the Creek and its surroundings as the EPA's process for remediation moved forward. The members of the CAG knew that if any long term plan for the cleanup of the waterway were to be a success, the bar had to be set high in order to see appropriate attention and investments. They knew that if the community surrounding the Creek was to benefit from the coming remediation they had to be involved as proactive participants in the planning of its future restoration.

From that initial meeting, 12 Guiding Principles were outlined (see page 46). They range from the conspicuous (removal of contamination, stopping ongoing pollution sources, and preventing future contamination) to the less overt (promotion and protection of industrial uses, restoration of indigenous wildlife in the water and onshore, resilience in light of climate change and its impacts on Creek communities, and public access and participation in the waterway). They are a dynamic and proactive set of guidelines, designed to usher in a Newtown Creek for the 21st century; robust, resilient, and as teaming with life as the City that surrounds it.

With City plans for sewage and stormwater pollution investments taking shape through DEP's Long Term Control Plan (LTCP), legacy contamination clean-up through the EPA's Superfund process

Newtown Creek at Whale Creek

underway, and redevelopment of all kinds exploding in communities surrounding the waterfront, Newtown Creek needs its own comprehensive long-term plan, one that pulls all of these elements together and sees the waterway in its future, cohesive state.

The CAG's principles were the first concrete steps in creating a roadmap for agencies at the helm of the Creek's remediation. This Vision Plan takes those principles and builds off of them; visualizing a new way for the Creek to function in the coming century. To create such a roadmap, Riverkeeper and the Newtown Creek Alliance, alongside Creek stakeholders in the Brooklyn and Queens communities, launched the vision process to capture decades of community conversations in one report.

With all of the pollution presently discharging into these waterways each year, and uncertainty around access and the way in which Superfund remediation and restoration will take place, there is, and always has been, a community of people fighting for this community resource and a place to play, learn, fish, and paddle. We hope that this report captured the concepts of the local community – residents, businesses, visitors, and visionaries alike.

We see Newtown Creek not as an unapproachable problem, or as forgotten a waterway; rather, we see waterways teeming with aquatic life, active recreational communities, clean water stewards, and committed educators. We see a waterway with great potential.

This Vision Plan is a community-driven catalog of these efforts already underway, as well as some new ideas for investments and innovations we, the community, have yet to launch – given the pollution and access barriers extant in this watershed. The Vision Plan is also a record of the pollution, access, and investment barriers facing Newtown Creek, and a plan for how to overcome those barriers, together.

A working waterfront

A natural waterfront

THE CREEK

Determining a path forward for the Newtown Creek requires efforts and innovation through large tracts of both Queens and Brooklyn, it's clear that change in the waterway is driven by change in the watershed. The Creek both connects and divides a number of communities in Queens (Long Island City, Sunnyside, Maspeth, and Ridgewood) and Brooklyn (Greenpoint, East Williamsburg and Bushwick). These neighborhoods are home to hundreds of thousands of New Yorkers; a host of cultures, economies, and interests. Many of these areas are experiencing rapid commercial and exponential residential expansion and growth, exerting extreme pressures on existing industry and infrastructure alike.

The industrial sector around Newtown Creek inadvertently has removed many of these neighborhoods from their waterway. Crucial to past and present regional economies, these industrial sites are both the cause of many of the Creek's worst problems and hold the keys to many of the it's most valuable clean water innovations. However and often surprisingly, recreational activities abound throughout the Creek, despite toxic contamination, sewage and stormwater pollution, and inaccessible waterfronts. Street-end access points, boat clubs, and environmental education hubs have arisen in several of the quiet corners and protected areas of the Creek. With valuable and significant maritime uses, historically low levels of pollution, new commercial investments, and growing local neighborhoods, Newtown Creek plays a unique and crucial role in the economic, social, and urban environment of Queens, Brooklyn - all at the (geographic) center of New York City.

STATE OF THE CREEK

A singularly complex and dynamic urban ecosystem, Newtown Creek is deeply polluted and has suffered more than a century of degradation. The last two decades however, remarkable strides have been made to reverse this legacy. The ebbs and flows of use and abuse, attention, and care from the regulatory and management agencies, universities, industries, and local advocacy efforts, continue to shape the Creek systems we work and live with today and will define the bounds of what is possible for the future. These complex systems are not always easy to define, some elements of them are very clear; legacy pollution, ongoing contamination, rebounding ecosystems, a transitioning industrial core, exploding adjacent commercial and residential development, a strong and growing group of community advocates and stewards. How these systems intertwine to form a healthy future is what this planning document envisions.

Ecologically, the naturalized riprap, hard bulkheads and soft edges, floating docks and fledgling salt marsh wetlands, street ends and sewer outfalls of the Creek are all a part of the larger estuary system that is the New York Harbor. Tidally driven and inundated by runoff with every rainfall, these waterways have the potential to be part of a very productive regional ecosystem. Today, however, much of the historic wetlands, marshes, seagrasses and soft edges have been transformed, hardened with bulkheads, functionally removed from the rest of the ecosystem – in short, the Creek has been turned from a natural wetland to a man made waterfront, losing the benefits of habitat rich soft edges and water infiltrating soils. The natural and constructed floating wetlands that do exist (or have been built) in the Creek reveal the potential for the waterway to realize the many co-benefits of salt marsh restoration, such as water filtration by native mussels and oysters and storm surge protection due to energy absorbing landscapes.

Surface contamination in the Creek

The Creek, home to water-dependent industries – barges brining materials in and carrying the City's wastes out – must figure prominently in this Vision. These industries are the hidden life's blood to the City; providing well paid entry level blue collar jobs, critical infrastructure, and economic stability to many of the surrounding communities. The waterway itself is designated as a Significant Maritime and Industrial Area (SMIA); industries along the Creek move over a million tons of freight by barge every year. The Creek's waterfront is nearly entirely industrial - the Mouth of the Creek being the only exception.

Expansive pre war rooftops, enormous parking lots, miles of pavement, all impermeable surfaces that lead from to the water's' edge to several blocks upland. Multiple truck routes, highways, and significant bridges cross the Creek, the Pulaski, recently modified for better bike and pedestrian use, the newly-rebuilt Kosciuszko, the more than a century old Grand Street bridge and a host of streets along and around the shoreline are all highly trafficked industrial and commuter corridors. Pressing up against this industrial activity the region is being reshaped by dense new developments, new infrastructure, and new zoning plans.

Layered over these ecological, social, and economic considerations is the catastrophic stress caused by ongoing sewage and stormwater pollution. The vast majority of the land that drains to this waterway – the ~6,500 acre Newtown Creek sewershed – is served by a combined sewer system. In this antiquated waste water system (where storm drains in the streets are connected underground with the sewer pipes coming from homes and businesses),

precipitation events as common as 1/10th of an inch can exceed the sewers' capacity, overflow within the system, and discharge directly into the Creek. Up to 1.2 billion gallons of discharge (consisting of raw sewage, pharmaceuticals, oils, debris, litter, and many more pollutants) can enter Newtown Creek every year – enough to fill the Empire State Building over three times with pollution. A devastating reality for marine life, workers and nearby residents that are expected to live alongside this actuality.

TOXICITY AND A VISION FOR CLEAN WATER

Contamination, its origins and lasting effects vary throughout the Creek; from the crude oil pollution at the ExxonMobil Greenpoint site – where millions of gallons of oil spilled over generations have pooled into underground oil reservoirs, to PCBs, PAHs, heavy metals, and an alphabet soup of hazardous materials scar that the landscape and ruin the waters. This coupled with the ongoing CSOs, the beleaguered waters often appear hopelessly marred by humanities activities.

Industry, particularly oil and other refineries and metal processing facilities, have left a legacy of contamination throughout the Creek and its watershed. These past problems continue to have deleterious impacts on the Creek and surrounding communities. The groundwater is unusable, cut off from use in the mid 1900s, underground plumes of oil seep into the waterway and other toxic plumes threaten the health of residential communities above, all causing public anxiety around health problems throughout the area. Years of advocacy by citizen groups, non-profits (including Riverkeeper and Newtown Creek Alliance) and elected officials have led to a thorough examinations of the extent of the decades and decades of pollution. These efforts triggered a host of small-scale enforcement actions, large-scale oil spill remediation work, and, eventually, the listing of Newtown Creek as a Superfund site, relief and environmental justice is in sight.

Newtown Creek was listed on the National Priorities list in 2010, triggering the EPA Superfund process. From 2011 to 2018 an extensive Remedial Investigation (RI) has been underway to assess the state of contamination and risks to ecology and human health. Simultaneously, the EPA designated the initial six Potentially Responsible Parties (PRPs) responsible for contamination in Newtown Creek. At the release of this Visioning Plan, with the RI process close to complete and a number of additional PRPs identified, the agency is poised to begin developing a Feasibility Study (FS), details of the Creek's ultimate cleanup, cost and associated timeline. Any such plan would be announced in a Proposed Remedial Action Plan (PRAP), open to public comment and subsequently memorialized in a final Record of Decision (ROD). Remediation of the waterway and its sediments will follow in the years to come.

Maspeth Avenue Plank Road Street End

This Superfund process, and specifically the CAG's role in the ultimate remediation plan, is a crucial part of this report, as the clean-up will ultimately create the baseline Creek conditions on which many of the projects and solutions identified in this plan rely. Further, potential Natural Resource Damage Assessment (NRDA) efforts and community restoration, corollary to the EPA's remediation work – for which the PRPs will also bear the costs – will be the venue for many of the environmental, education, and access based proposals in this report.

Despite all the contamination, stormwater discharges, and sewage pollution, it is important to recognize that water quality in Newtown Creek is better today than it

has been in the past century. Much of this improvement is due to upgrades that have already taken place to the Newtown Creek Waste Water Treatment Plant. This recognizable landmark is capable of handling up to 700 million gallons of raw sewage daily, a staggering number and a relief to the waterway. Plans for the future, through the Long Term Control Plan, call for further capture of sewage during wet weather events. Even more innovation for water quality improvement is needed, including some of the idea outlined in this document.

Because of improvements made to-date, the Creek is responding; wildlife is returning and more and more people are utilizing the waterway as a resource for recreation and education. With the projects and priorities set forth in this Vision Plan, Newtown Creek can again be a vast resource that is accessible, fishable, swimmable, and enjoyable. One that provides the unique ecosystem services that healthy tidal salt marshes once provided to much of New York Harbor.

In this Vision Plan for the future, shorelines are no longer crumbling unusable as a working waterfront, nor are they only hard bulkheaded walls, unsuitable for life. Instead, the waterfront edge is the connective tissue of the Creek's urban ecosystem, protecting upland areas from flooding and providing habitat for aquatic plants and animals. The Creek's crucial core navigable channels remain and are fortified, ensuring that the industrial economy can thrive. Green roofs blanket warehouses, climate resilience retrofits abound, and maritime access can be found in all reaches. An urban ecosystem like this embraces the multiple uses of the Creek and provides opportunities and access for area community members to enjoy, learn from, sustainably use, and live alongside.

OUR APPROACH

A clean water vision for Newtown Creek formed over time, through a participatory process shaped by the many voices of Newtown Creek advocates and stakeholders. The Newtown Creek CAG,

June 3, 2017 Public Visioning Session

was the spark that started this Vision Plan and provided the Guiding Principles that grounded the Vision Plan process. From there, Riverkeeper and the Newtown Creek Alliance developed a categorization method utilizing Four Rs; Remediation, Restoration, Resilience, and Recreation, to frame the approach to this Plan (see page 24). The goal was to provide a roadmap for remediating historic pollution and degradation, restoring and revitalizing lost and damaged ecosystems, providing for safe and accessible opportunities for recreation and education; on the waterfront, between communities, and on the water, and ensuring climate and economic resilience of the industries, businesses, communities, and ecosystems around the Creek.

With this framework in mind, the generation of ideas and input from stakeholders for physical projects along the waterfront and throughout the Creek watershed was the primary vision process goal. Dividing the Creek into seven different reaches allowed us to work with city agencies, community members and those with vested interests in the waterway on specific, detailed proposals along the shores of the Creek. Community members proposed, contributed to, and developed the ideas presented here – at CAG meetings, at our kick-off meeting, a visioning session, at networking events, and at a host of smaller stakeholder sessions and brainstorming meetings. These meetings and workshops brought together community leaders, residents, and experts from organizations and agencies around the City. LaGuardia Community College, Waterfront Alliance, SWIM Coalition, Billion Oyster Project, Evergreen, LIC Roots, North Brooklyn Boat Club, Harbor Lab, students from Williamsburg High School for Architecture and Design, Smiling Hogshead Ranch, and so many more stakeholders from areas businesses, community boards, IBZs, elected officials, city agencies, were all among the hundreds that came to the various meetings throughout the planning process.

September 15, 2017 Public Mixer

The uniquely skilled and adept team at Perkins + Will brought these ideas to life. These designers offered invaluable urban design and planning expertise, they were a steady hand that made the Vision Plan truly a visual exercise. For each Reach, and for the system as a whole, the goal was to capture the present state and future potential of the Creek. All the while integrating the needs, desires, and concerns of the people and businesses that are integral achieving the Visions presented here.

While this document represents a version of the outcome of these processes, the ideas herein are designed to be malleable – to be reshaped as needed, as time goes on, by more public input, as often is the reality in scenarios such as these. This Vision is a tool developed by the Creek community, for the community, to be used by the community.

CREEK WIDE SOLUTIONS

Newtown Creek is too complex to be analyzed as one waterfront. In order to more effectively develop actionable ideas from the community, and ensure we captured their specific concerns, this Plan divides Newtown Creek into seven separate “reaches” (a nautical term for segments of a waterway), there is a seperate section that discusses Creek Wide ideas and project opportunities for improvement. Each reach has an individual story, and connects in a unique way to the surrounding communities. Taken all together, each reach is part of a whole, and in this case, the whole is greater than the sum of its parts.

The Vision Plan's 7 Reaches

THE REACHES

The **Mouth of the Creek** is home to the greatest area of new development anywhere along the Creek's shore, both in Brooklyn and in Queens, it is also the region most prone to flooding. Investments in edge design improvements on both sides of the waterway will help with neighborhood resilience while also shoring up waterfront businesses into the future. Proposals for a small marina and a redesigned street end shoreline allow for increased accessibility to the water for recreational use.

Whale Creek is one of the most active maritime use industrial areas of the Creek, due to the regular barge traffic servicing the Newtown Creek Wastewater Treatment Facility and recycling operations nearby. Surrounding the Wastewater Treatment Facility, the City's "Nature Walk" already provides direct access to the water and hosts rare for the area native plants and interpretive artwork.

With intelligent and inclusive planning, the waters and waterfronts of Whale Creek can be designed in a way that ensures industry coexists with recreation, access doesn't impede maritime traffic, and bulkheads support jobs as well as ecosystems. A reimagining of the Department of Sanitation's derelict waste transfer facility into a learning laboratory and light industrial hub brings water access to the heart of the reach, while wetland creation at North Henry Street provides an anchor and a refuge for the ecosystem and a safe space for recreation out of shipping lanes.

The westernmost (and arguably most stagnant) tributary of Newtown Creek, **Dutch Kills** cuts almost due north from the Newtown Creek Wastewater Treatment Plant into Long Island City, Queens. Intimately nestled among tens of thousands of students at half a dozen different schools, new residential towers, and rapidly growing commercial and industrial corridors, this tributary has for too long been kept apart from the community around it.

Every year, millions of gallons of combined sewer pollution pour into Dutch Kills, abandoned deteriorating barges lie unattended, legacy contamination is found throughout the surface and subsurface sediments of the tributary. Low bridges and sediment build-up render the waterway inaccessible by even the smallest boats. Crumbing bulkheads, neglected streetscapes, and overgrown edges prevent people from seeing or enjoying the waterway. At Visioning events, community members envisioned the tributary with nearby green park space, green roofed buildings, a scenic walking loop around the Creek, and bridge designs that support in water salt marsh restoration; in sum, a waterbody that connects one of the fastest-growing communities in the City to a restored wetland waterfront park.

Midway into the Creek, **Mile Two** is a long narrow channel of water. This is the epicenter of one of the Creek's largest remediation projects: a massive, 17-30 million gallon plume of oil that lies underground below businesses and homes in Greenpoint. On the opposite shore, in Queens, the Blissville Seep still leaks oil into the water. Trucks and heavy construction vehicles continue to dominate the surrounding streets. Shorelines, deteriorated and crumbling, provide little storm surge protection for the upland industries.

Because this reach is industry-heavy, and there is little to no space for adaptation planning within the Creek itself in this narrow stretch, industrial buildings must play a large role in building climate resilience and ecological restoration.

Green infrastructure, particularly green roofs and adapted shorelines and bulkheads offer opportunities. Though space in Mile Two is limited, community members' visions for the reach, take full advantage of the coming Kosciuszko Bridge Parks, and street-end parks for critical open space, green infrastructure, and water access.

Before the Creek was industrialized, the **Turning Basin** sat at the confluence of a number of tributaries and shallow marshes. Over time, this open basin was widened and deepened – and the islands at its center, made up largely of oysters and mussels, was either dredged and removed or filled in to make more usable land – to create an area large enough for barges and the large boats of the early 20th century to turn around in and head back out of the Creek.

Shallow, silty, and home to one of the largest combined sewer outfalls in the Creek, **Maspeth Creek** presents one of the best local opportunities for ecosystem restoration. Decades of sedimentation have made Maspeth Creek impassable by boats. With large-scale industrial operations encircling the tributary (but largely parking lots abutting the waterway itself), and a trash boom stretching across the mouth of Maspeth Creek, the waterway has been kept a world apart from human use for half a century. Maspeth Creek remains, nonetheless, coated in contamination and saturated with sewage, but the inaccessibility of Maspeth Creek provide sanctuary for wildlife. Cormorants, herons, menhaden, and more have been observed fishing, foraging, and schooling around the trash boom and in the open waters of the Basin.

Community members imagined Maspeth Creek and the Turning Basin managed together as one ecological system, with Maspeth Creek made permanently non-navigable, shoreline edges revitalized, lookouts and walkways built out as nature walks of their own. Restoration would firmly anchor the environmental revitalization of the Newtown Creek as a whole, returning this natural community asset to the people, fish, and waterfowl.

The **East Branch** tributary was once the northeastern edge of the vast Newtown Creek salt marsh, connecting to fresh water and feeding into streams. Traversing East Branch today, the Grand Street Bridge connects the Boroughs of Brooklyn and Queens. The old bridge, unsafe for pedestrians and bikes, could be part of larger green street corridor providing access to the water and habitat for oysters and other marine wildlife. Upland, parking lots drain directly into the waterway, contributing to pollution and inhibiting area resilience. These lots can be transformed with protective berms and green infrastructure, redesigned to a capture stormwater and build resilience for the industrial corridor and surrounding communities. Neighboring DEP's new aeration facility, there is a property fallen into disuse, originally promised for community purposes, those promises are as neglected as the property.

The industrial legacy that channelized East Branch dramatically limited tidal flow leading to stagnant waters, heavy CSO discharges make the water severely impaired. Despite the odds, community members see a different future for East Branch. The shallow waters offer up an amazing opportunity for restoration with salt marsh and sea grassesand the reintroduction of oysters, both create new marine wildlife habitat. With a little help, this inlet can become an ecological pocket of marshland driving clean water throughout the system.

Farthest from the mouth of the Creek and the East River, **English Kills** runs right up to the doorstep of the close-knit Bushwick community. This head end of the Creek is only fed by stormwater and sewage pollution, discharges from one of the largest combined sewer outfalls in the City; hardly the type of waterway this proud community deserves.

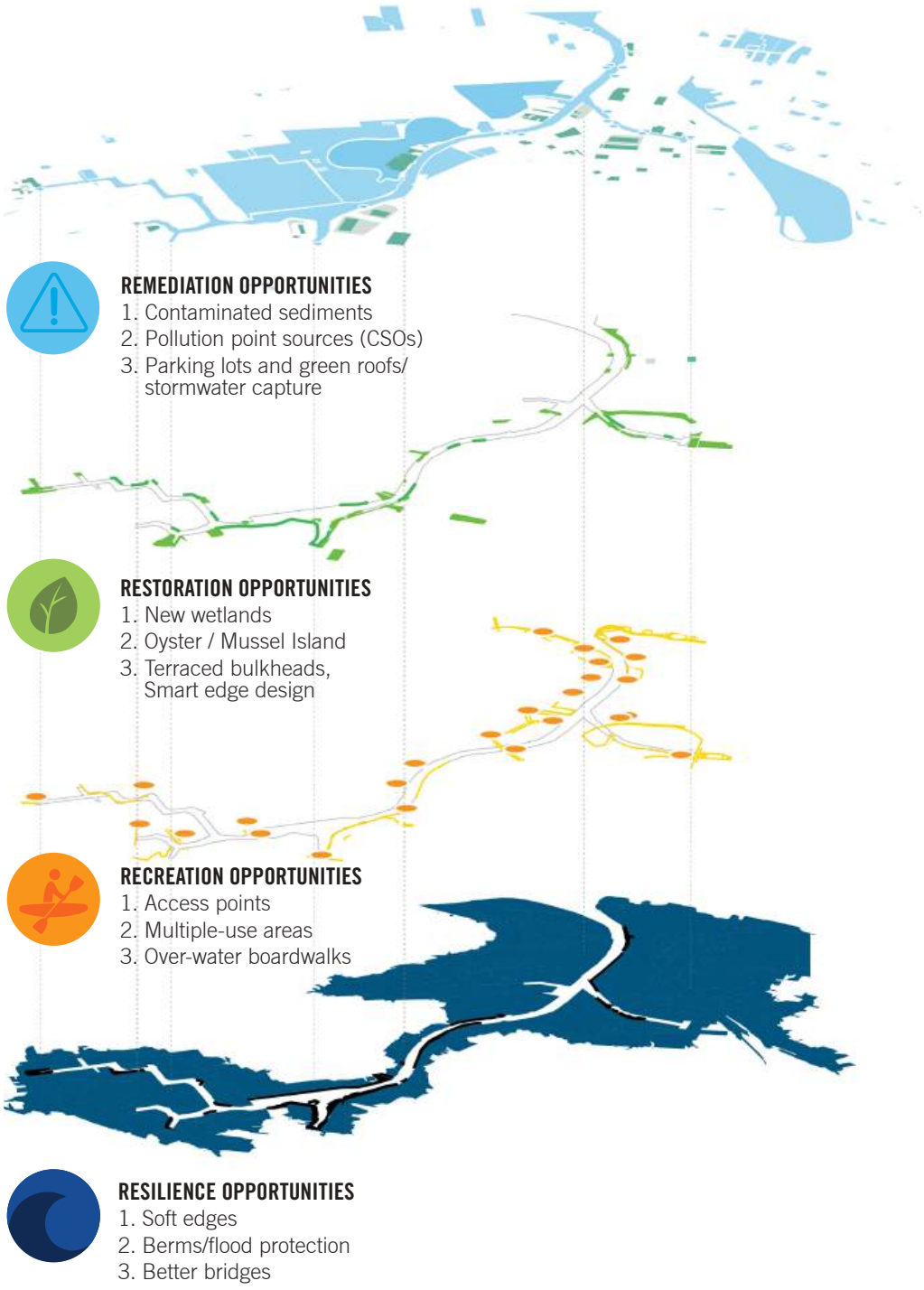
Proposed New Head of Creek Park, page 118

The most significant feature of English Kills isn't necessarily the combined sewer that feeds it, but the series of 90-degree hairpin turns. These unnatural, jagged turns impede tidal flow - and prevents water circulation; thus, the very structure of English Kills is its greatest weakness. Polluted sediment, stagnant waters, and toxic contamination remain stuck in this tributary, waiting for investments in remediation,and perhaps a softening of its man made corners.

The vibrant and rapidly-expanding residential, commercial and mixed use areas have no way to access or explore the waterway running behind their buildings – a barrier that can, and should, change given the lack of open space available in this part of Brooklyn. As one of the most low-lying, densely-developed, and highly contaminated stretches of the Creek, community members envisioned pockets for parks, shallows ideal for salt marsh restoration, shorelines poised for innovative reconstruction, rooftops ready to be greened, and city streets and sidewalks redesigned for efficient stormwater capture and control, English Kills is a perfect living laboratory for urban clean water innovation.

CREEK-WIDE

Breaking Newtown Creek into seven separate reaches enabled us to focus on individual projects and site-specific localized improvements. A comprehensive approach, however, enables understanding of complex issues that exist across multiple reaches, boroughs and neighborhoods. A full Creek analysis moves beyond the political and geographic siloed configurations of the watershed that limit and isolate issues, that are complex and multi-layered.



Creek-Wide 4R's

As we compiled what we viewed as Creek-wide solutions, two overarching policy recommendations emerged as key factors in the ultimate remediation and restoration of this waterway: the need for interagency collaborative planning and the value of multiple uses. These pillars led to a number of system-wide priority projects.

Developing solutions for stormwater capture on bridges and overpasses, area-wide green infrastructure, and designing safer streets and corridors for cyclists, pedestrians, and public transportation will require the time and attention of a number of agencies.

Shoreline innovation – for multiple-use resilience and restoration benefits – will need to be elicited from a number of academic and agencies partners and will need to be folded into both small-scale business decision-making processes as well as long-term Superfund plans.

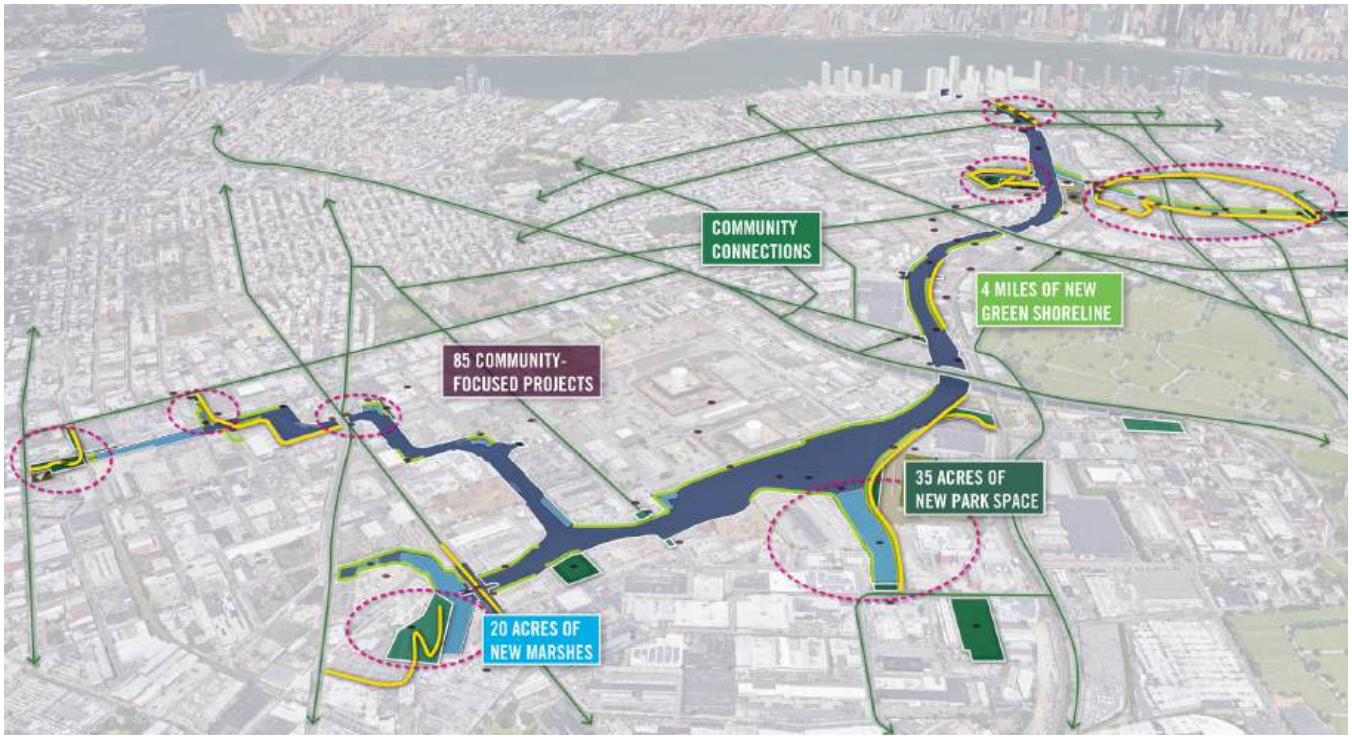
Finally, hard looks at navigability, where should we improve and advocate for better barge use and where should there be areas delisted as navigable waterways largely before many projects in this Vision can be made feasible.

THE ROAD AHEAD

The majority of this report focuses on physical improvements to Newtown Creek, the water, its shorelines, and adjacent upland areas. While it would be easy to say that the next step here is to break ground on these improvements, this contaminated, industrial, sewage-burdened waterway has never had solutions that simple. Thus, since our first meeting with the public, the biggest question we've been asked is how we could make any vision for the Creek a reality – let alone a vision – significantly changing how almost every inch of the Creek is shaped and functions. Simply put, the answer is to work incrementally. By working the Creek at small scales, reach by reach, the clean water future can be built.

The framework for taking those steps, presented here as priority projects and system solutions, will require significant investment of time and creativity by the community, agencies, industries, developers, planners, and elected officials – shaping together what Newtown Creek will look like for years to come.

With two boroughs, three Community Board districts, four City Council districts and seven different neighborhoods bordering Newtown Creek, better integrated engagement throughout these separate communities is a vital next step.



Only by having an informed and engaged community, working collaboratively toward the same goals, will we collectively achieve the priorities set forth in this Vision Plan. While many of the city, state, and federal elected officials that represent Newtown Creek are supportive of the cleanup efforts, there is a glaring lack of recognized leadership by any one office. Achieving this Vision requires an all-hands-on-deck objective. These entities, moreover, must coordinate and collaborate to ensure that solutions aren't delayed – let alone missed – due to this lack of leadership. Strategic deployment of city planners, engineers, community liaisons and budget officers, architects and lawyers from the city, state, and federal agencies working on Newtown Creek will be the key to efficient and effective implementation of this Vision.

Perhaps most significantly, new funding sources must be cultivated for essential projects affecting the Creek. Waterfront industries cannot take it upon themselves to install the best-choice bulkheads, or open up public access corridors. Private owners, unfortunately, do not possess the wherewithal nor the funding for radical renovations required to make necessary improvements. New infrastructure will be needed, heavy lifting will be essential. So will small signs and subtle innovations, the devil is in the details. Pilot projects for new wetland designs are already in the works for the Creek, but we'll also need to survey ecosystem trends and apply new technologies. These investments demand a careful assessment of Natural Resource Damage Assessment funding opportunities, innovation in Superfund remedial design, and more investment in the communities that are living and working in the Creek's watershed today, with all of these, strong proactive and progressive leadership is key.

Newtown Creek Alliance and Riverkeeper, as advocates for the Creek and its surrounding communities, recognize the challenges inherent in carrying out this Vision over the long term. Our plan is to remain present and active, and will be here with the Creek and with the community as final decisions are developed at the city, state, and federal levels; striving to ensure that this Vision Plan, and the priorities included herein, are championed and ultimately met.

85 Community-Focused Projects in 7 Reaches

MOUTH OF THE CREEK page 64

1. Long Island City Shoreline Restoration
2. Pulaski Bridge Public Space Improvements
3. Pulaski Bridge Marina
4. North Brooklyn Community Boathouse
5. Connecting Vernon to Vernon
6. Greenpoint Bulkhead
7. Vernon Boulevard Street-End Redesign
8. Hunter's Point Promenade
9. Oyster Reef Reintroduction: Encircling LaGuardia Airport

WHALE CREEK page 72

1. Nature Walk Enhancements
2. Kingsland Avenue Connection
3. Improved Piers and Industrial Access
4. Kingsland Wildflowers Expansion
5. Bulkhead Salt Marshes
6. Clean Soil Bank and Community Compost Facility
7. Gateway to Greenpoint
8. Enclosures for Open Use Facilities
9. Shoreline Restoration at Industrial Lots
10. Shoreline Restoration at North Henry Street Public Basin
11. Marine Transfer Station Redesign
12. Better Barge Traffic Flow for Industrial Uses

DUTCH KILLS page 80

1. Removal of Abandoned Barges
2. Ranch on Rails
3. Renovation of Borden Avenue Bridge House
4. Shoreline Wetland Restoration
5. Improved Bridge Designs
6. Green Parking Garage for LaGuardia Community College
7. Bernie's Walk
8. 29th Street Park
9. Montauk Cutoff Extension
10. Dutch Kills Loop

MILE TWO page 88

1. Kosciuszko Bridge Waterfront Park
2. Oyster Gardens
3. Gardner Avenue Improvements
4. Review Avenue Bike Path
5. Penny Bridge Park
6. Living Bulkheads
7. Remediated Blissville Seep
8. Apollo Street Sponge Park
9. Shoreline Stabilization and Restoration
10. Redesign of Green Asphalt Edge
11. 400 Kingsland Avenue

MASPETH CREEK & TURNING BASIN page 96

1. Connecting Cooper Park to the Water
2. Maspeth Avenue Overlook
3. Floating Wetlands
4. 49th Street Overlook
5. 49th Street Public Space
6. Green Roof and Mural on Shipping Facility
7. Copper Plant Walkway
8. National Grid Bulkhead Redesign
9. Round the Corner at Maspeth Avenue
10. Plank Road Expansion
11. Mussel Island
12. Maspeth Marsh: New Wetland Creation
13. National Grid Remediation and Redevelopment

EAST BRANCH page 104

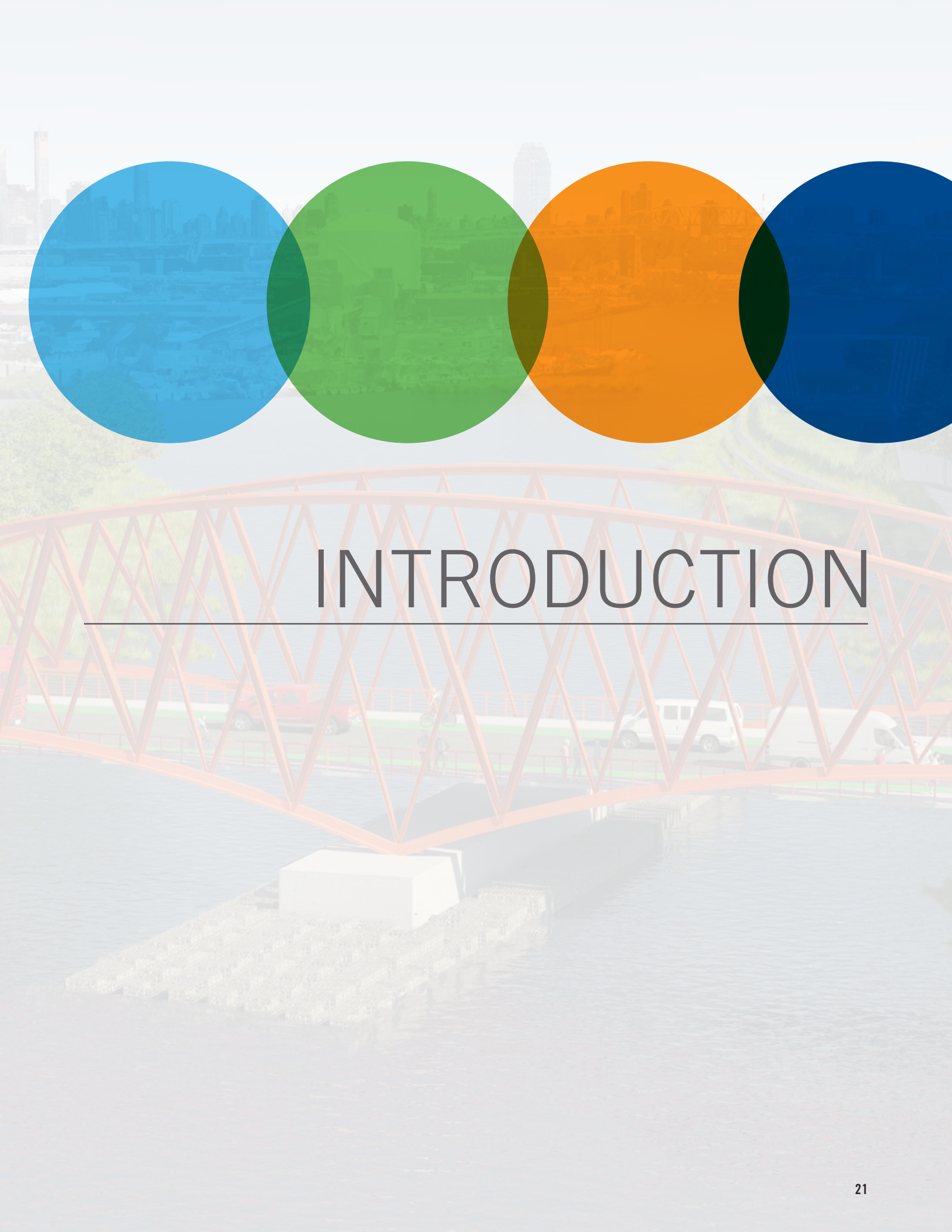
1. Border of the Boroughs
2. Green Roofs on Older Industrial Buildings
3. Solar Installations on Newer Industrial Buildings
4. Bridge Redesign: Oyster and Mussel Reefs
5. Soft Shoreline Edges
6. Wetland Restoration
7. Bridge Reconstruction: Public Access and Ecosystem Function
8. 47th Street Lot
9. Western Beef Berm

ENGLISH KILLS page 112

1. Metropolitan Avenue Water Access
2. Metropolitan Avenue Overlook
3. Remediate Active Seepage Sites
4. Colossal Shoreline Redesign
5. Pocket Marshes
6. New Head of Creek Park
7. New Basin Boardwalk

CREEK-WIDE PROJECTS page 122

1. Parking Lot Redesign
2. Reducing Marine Debris
3. Enforced No Wake Zone
4. Reverse Recent Encroachment onto Public Property
5. Sea Level Rise Adaptation
6. Green Roofs on Industrial Buildings
7. Green Infrastructure throughout Watershed
8. Renewable Energy Deployment
9. Wayfinding and a New Network of Educational Signage
10. Improved Pedestrian and Bicycle Infrastructure
11. Stormwater Capture from Bridges and Overpasses
12. Historic Stream and Groundwater Investigation
13. Funding for Shoreline Redesign and Construction
14. Strategic Delisting of Navigational Areas



INTRODUCTION

Introduction

Newtown Creek is a complex urban ecological system with a rich economic and cultural past, present, and future.

THE NEWTOWN CREEK URBAN ECOSYSTEM

From the initial assessment of the state of the Creek (it's ecosystems, economies, and stresses) to the ultimate system-wide solutions for remediation and restoration, this Vision Report presents, in one place, the elements of this system.

This once ecologically active estuary was transformed by New York City's industrial revolution into one of the nation's most active industrial waterways. Despite unquestioningly creating significant economic opportunity for the region, this transformation is directly responsible for the Creek's lasting legacy of pollution. Although the heyday of heavy industry has subsided since the mid-20th century, the Creek is perhaps still best recognized by this industrial character; it is surrounded by three separate Industrial Business Zones (IBZ) and crossed by multiple truck routes and highways. The waterway itself is designated as a Significant Maritime and Industrial Area (SMIA), as the industries along the Creek transport over a million tons of cargo on the water each year.

In 2010, Newtown Creek was designated by the U.S. Environmental Protection Agency as a federal Superfund site. In so acting, the EPA concluded that decades of contamination from oil refineries, chemical and fertilizer production, and a host of other industries had left the water and sediments laden with dangerous amounts of metals, polycyclic aromatic hydrocarbons, volatile organic compounds, and semi-volatile organic compounds. Due to continual sewage overflow into the Creek, the waterway regularly fails to meet minimum Clean Water Act standards intended to protect public and environmental health, while trash, debris, and solid sewage pollution build up in the tributary heads creating noxious odors and limiting navigational access.

Beyond sewage, stormwater, and toxic pollution, ongoing land use changes in surrounding neighborhoods, a lack of public access to the Creek itself, the return of marine wildlife to NY Harbor, and the ever-present threat of climate

change add extra levels of complexity to this system. Our goal for this Vision Report was to dissect these issues with the community, and, together, put on paper some of the best ideas for waterway improvement. In short, within this complex system, how can we better use, enjoy, and protect Newtown Creek..

HOW TO READ THIS DOCUMENT

There are three main sections to this Visioning Plan document, this introduction is meant to help navigate them. Beginning with the **State of the Creek**, the report kicks-off with a full systems analysis of the Creek detailing aspects of the pollution, access, and ecosystem status quo. In the **Reaches** section, the report breaks the Creek into 7 different sections (waterway "reaches"); for each, examines the local conditions of the waterfront edge, floodplain, and ecosystem, then outlines a number of improvements projects proposed by the community during a series of public meetings held around Creek in 2017. Each reach analysis also includes an area-wide rendering that showcases the full potential of these waterways. We also include a Creek-wide Review where larger, more general solutions that are needed throughout the project area are explored.

The Vision Plan concludes by zooming out from the analysis of specific projects to an examination of larger **System Solutions**. A number of these ideas rely on completion of major cleanup efforts (like Superfund) as well as better coordination among city, state and federal agencies, and continued investment in waterway improvement by community groups and local businesses.

As is needed in any document of this nature, the Road Ahead, on the final pages of the report, punctuates the challenges of moving these project ideas forward. From the smallest project proposed to the largest Creek-wide solutions, this Vision Report is a guide for policy makers, investors, innovators, advocates and agencies as the clean-up of the Creek moves forward.

The 4Rs

REMEDIATION

noun: the action of remedying something, in particular of reversing or stopping environmental damage.

Remediation for the Creek will require a multifold approach; addressing contaminated sediments in the water through Superfund - which likely includes extensive dredging, discontinuation of combined sewer overflows and further abatement of stormwater runoff into the waterbody through the Long Term Control Plan and additional improvements. In addition to these large scale efforts lead by the EPA and the DEP, tackling upland pollution sources found in soils and groundwater is also necessary.

RESTORATION

noun: the action of returning something to a former owner, place, or condition.

Repairing ecological systems to thrive alongside urban industrial uses, both aquatic and terrestrial, necessitates proactive management and assistance in New York Harbor. Healthy tidal estuary systems provide critical ecosystems services and function as an important foundation for marine and avian populations all over the eastern seaboard. Industrial New York City saw most of these habitats decimated during the industrial heyday of the late 19th and 20th Century. Today, we have a different approach and attitude towards the environment, restoration of native plants and indigenous animals are essential to a healthy City.

RECREATION

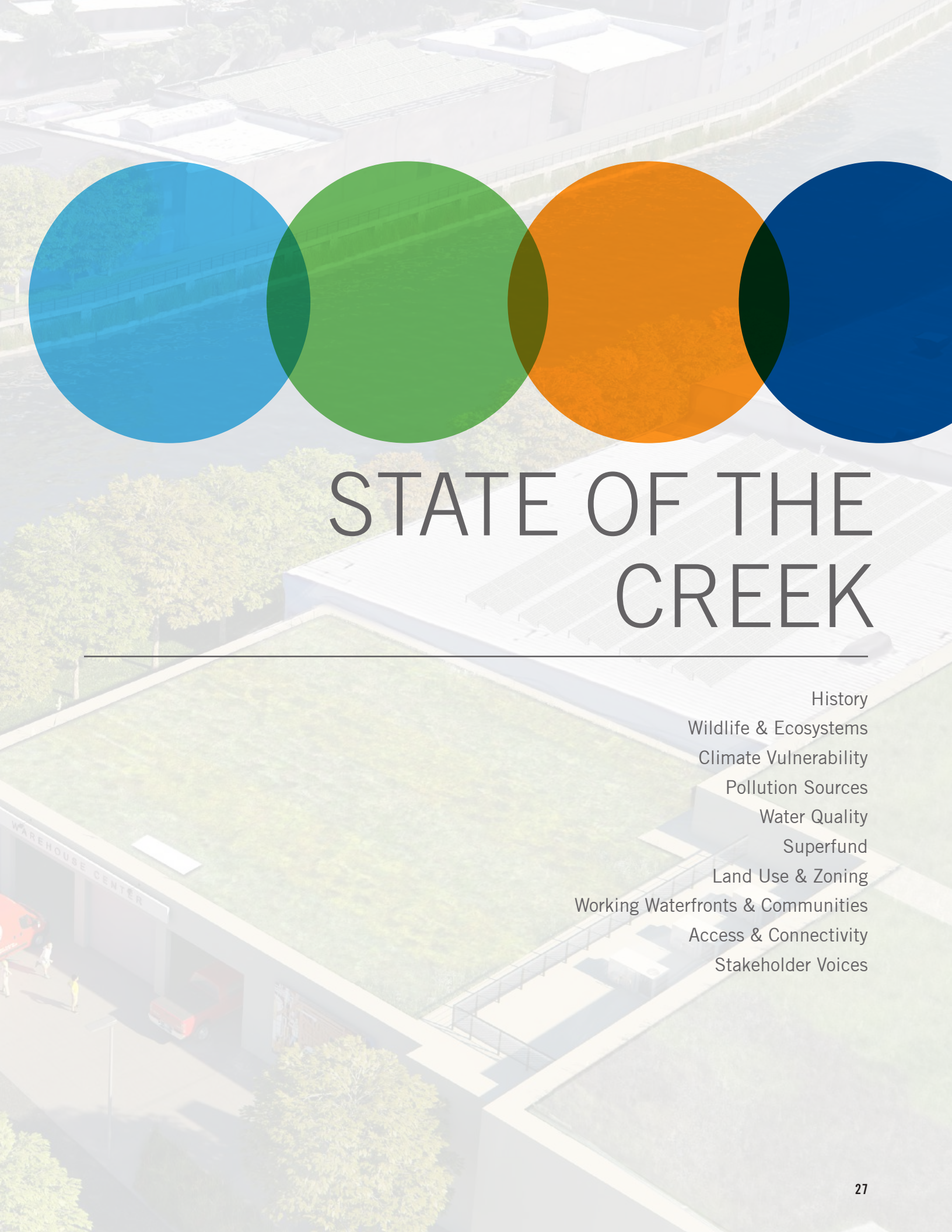
noun: *activity done for enjoyment when one is not working.*

Open natural space, available for both passive and active use is an integral part of a well designed city. Boating, fishing, jogging, bird watching, sitting under a tree's canopy, these activities relieve stress, are a source of inspiration, rejuvenation, and relaxation. Recreation brings communities and cultures together and unites us in positive ways. Recreation is not an afterthought or side note, it is an end in and of itself. With more people than ever living and working in the areas surrounding the Creek, opening up access to the water as a means for safe, opportunities for outdoor activity is a necessity.

RESILIENCE

noun: 1) the capacity to recover quickly from difficulties; toughness.
2) the ability of a substance or object to spring back into shape; elasticity.

Resilient neighborhoods, industries, environments, and ultimately the cities these form, obligates planning for future emergencies and challenges. When pressure is applied to the urban ecosystem will the system bounce back?? This question will define a city as we move into a time dominated by erratic weather, growing populations, and rising waters. Recognizing weak points along the waterfront that might be modified to prevent flooding of businesses and surrounding homes, or identifying rooftops and parking lots that can be utilized to adopt green infrastructure and regulate temperatures, and other similar broad investments should be prioritized to protect the working waterfronts beyond our lifetimes.



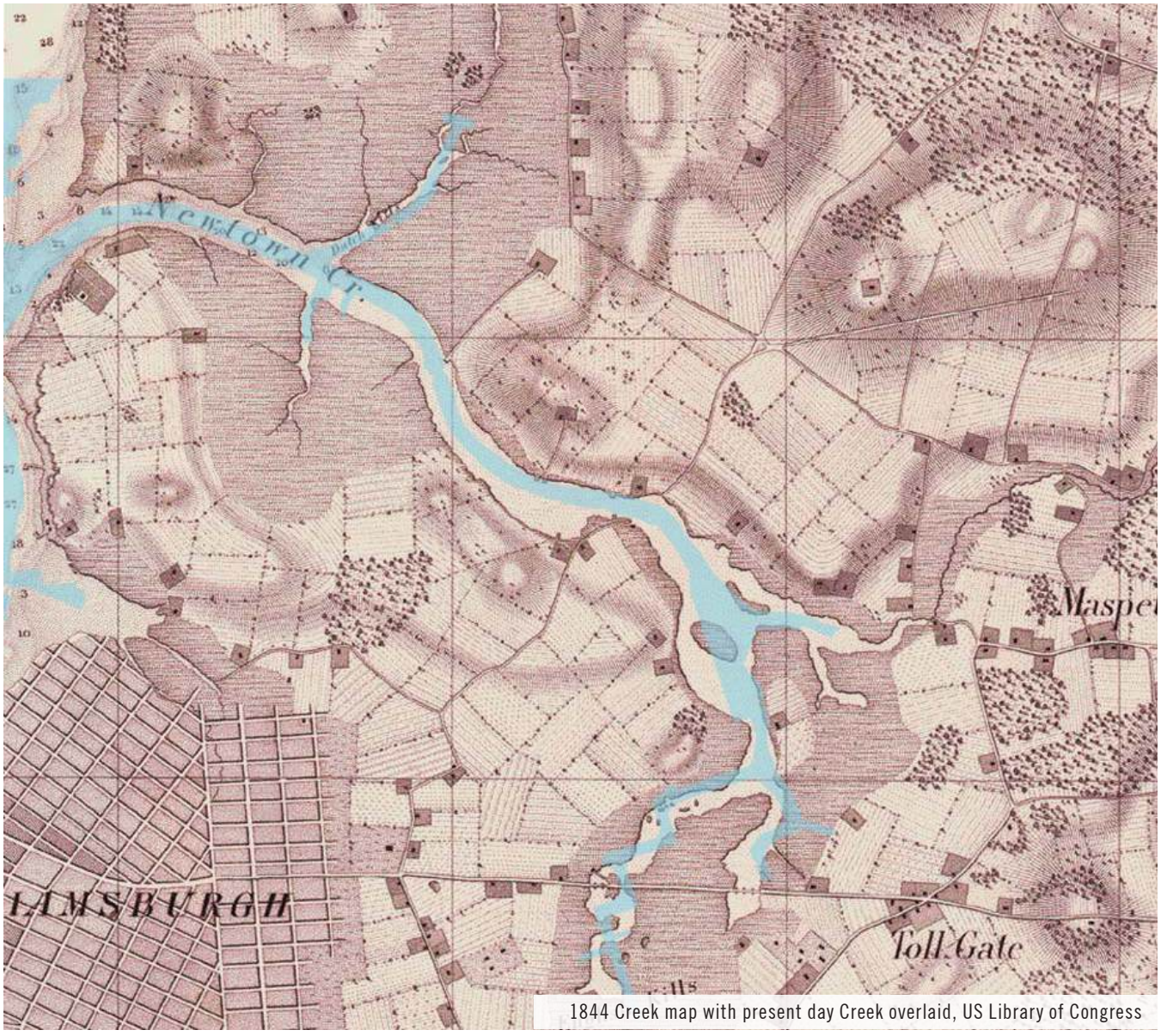
STATE OF THE CREEK

History
Wildlife & Ecosystems
Climate Vulnerability
Pollution Sources
Water Quality
Superfund
Land Use & Zoning
Working Waterfronts & Communities
Access & Connectivity
Stakeholder Voices

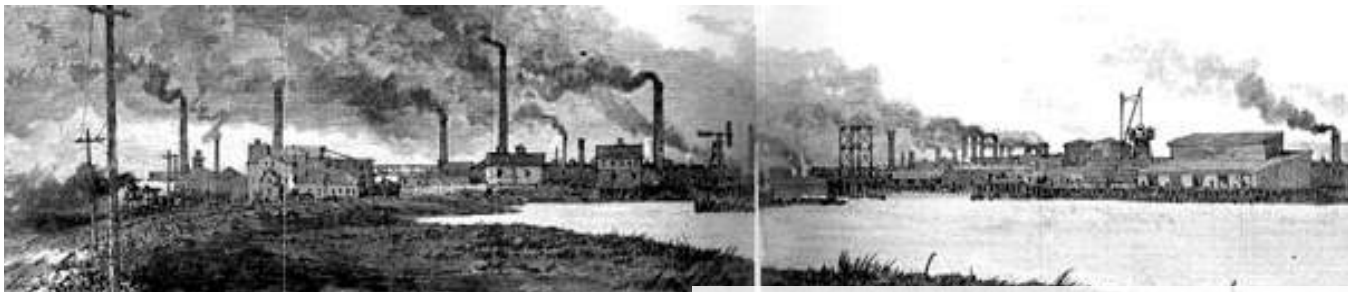
History

The natural landscape of Newtown Creek is a result of landforms laid down during the past 60,000 years, a result of a long ice age. The mile thick ice sheet which swept south and west from Canada deeped the Hudson River's watercourse and carved up much of New York State, scraping the bedrock bare, depositing vast amounts of sand, rocks, boulders, and other debris at its furthest extent.

Around 12,000 years ago, as the last ice sheet melted, these enormous deposits were left in heaps called "terminal moraines". As the glaciers melted and the seas rose, these moraines, now known as Long Island, were separated from the mainland. As temperatures rose, the new archipelago was eventually colonized by robust forests and fields. As sea levels approached today's new normal, waters filled in the shallow inlets and depressions around what would become Newtown Creek – creating a series of tidal estuaries. One of these smaller estuaries that fed into the Creek was called "Mispat" by the local Native Americans (now known as Maspeth Creek), which means either "overflowing tidal stream" or "bad water place," aptly reflecting the brackish and swampy nature of the



1844 Creek map with present day Creek overlaid, US Library of Congress



1881 Blissville looking eastward towards Maspeth, Harper's Weekly

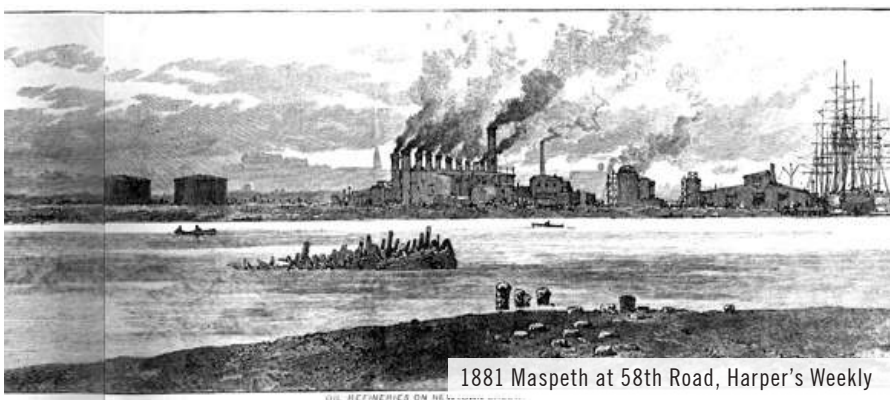
Creek. Oysters, fish, birds, and crabs swarmed the tidepools and salt marshes in this estuary.

The Dutch first surveyed the Creek in 1613, and soon after the first European settlers began clearing high ground for farms. Names like Dutch Kills and English Kills reflect the nationalities of these early European colonists. By 1642, English settlers from Plymouth Colony founded the village of Maspeth, and soon moved inland to found Newtown (Elmhurst) – adopting the name for the nearby waterway. Land clearance and farming continued throughout the next 200 years and agriculture pressed further into the extensive wetlands, as landowners drained and filled marshy areas around the Creek and its tributaries. A few rudimentary industrial activities appeared along the water's edge, leading to the Creek's claim as one of the oldest continuously-used industrial waterfronts in the nation.

By the 1830s, the area's location across the East River from booming New York City attracted the interest of Neziah Bliss, a Connecticut native and former Ohio River steamboat captain, and the eminent Reverend Dr. Eliphalet Nott, president of Union College at Schenectady, New York. Dr. Nott was an amateur inventor and Bliss his marine engineer. Together, the pair built a drawbridge across the Creek (where Greenpoint Avenue Bridge sits today) and experimented with marine steam boilers fueled by anthracite coal. Their company grew rapidly and began an agglomeration of ship-building and maritime industries in Greenpoint.

In the late 1800s, the United States Army Corps of Engineers (USACE) began dredging the Creek to better accommodate waterborne commerce. By 1884, the East Branch of Newtown Creek and Whale Creek had hardened edges and bulkheads to help access more of the navigation channel. By 1919, the Creek's last remaining marshes (found only at the end of Dutch Kills) were filled in to create new industrial parcels, and the last natural shoreline was converted into a bulkhead. For the next thirty years, beyond industrial and sewer-system pollution, dredging was the only other constant condition in the Creek. At the start of World War II, Newtown Creek was one of the busiest commercial waterways in the nation. Channelization and dredging activities were largely completed, bringing the Creek to its current form, by the 1930s.

One of the reasons for the primacy of the Creek in the nation's commerce sector was its proximity to New York City and the greater port of New York and New Jersey. Foods flowed to the Creek from farms on the North and South Forks of Long Island, slated for transport to the growing City's markets. For decades, whalers plied the East River, and whale oil processing industries sprouted up along the Creek to meet local demand for lamp fuel (the memory of this industry is preserved in the name of Greenpoint's only tributary: "Whale Creek.")



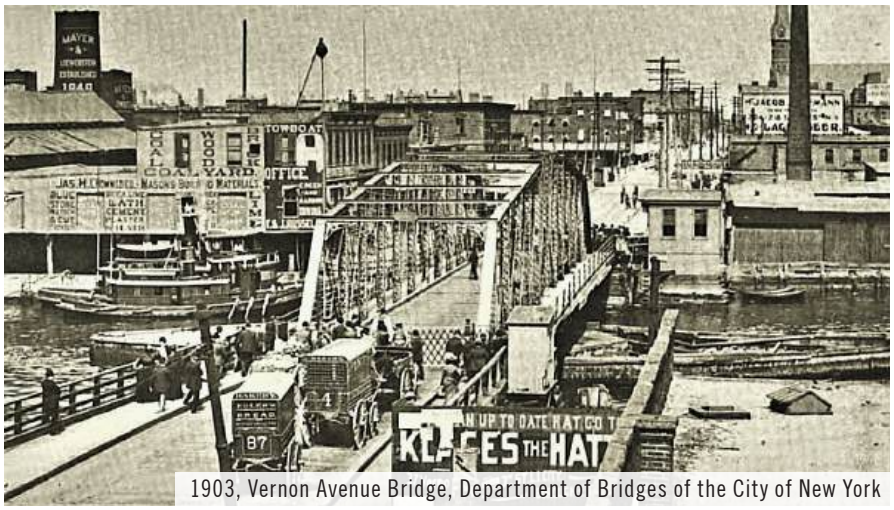
1881 Maspeth at 58th Road, Harper's Weekly

By the end of the 19th century, John D. Rockefeller's Standard Oil had over 100 facilities lining both sides of Newtown Creek. Refineries often had effluent discharge, most of it directed straight into the Creek; some of it soaked and sank into the very porous terminal moraine sediment layers, pooling on top of the water table and contaminating aquifers deep under the Creek.

Other noxious industries established themselves along the Creek, including sugar refineries, hide tanning plants, canneries, copper wiring plants, shipbuilding, distilleries, metal processing and weavers. The Creek, had become the center for all of New York City's most harmful enterprises. Many of these industries simply dumped wastes into the Creek, or allowed pollution to seep into the ground until the late twentieth century.

In order to support burgeoning industrial growth in the area, transportation infrastructure became the next heavy investment in the Newtown Creek watershed. In 1870, the South Side Railroad of Long Island completed a rail line along the north side of the Creek, serving industry and linking Hunters Point docks with Long Island's railroads. As Queens and Brooklyn urbanized around the Creek, new bridges were constructed to connect communities and support the local movement of goods and materials. In 1940, the Queens-Midtown Tunnel opened, providing a direct road connection with Manhattan, and a highway was extended from the tunnel east toward Laurel Hill Boulevard – later expanded and extended, and renamed the Long Island Expressway. By 1964, the Brooklyn-Queens Expressway was completed, overseen by Robert Moses,

1894, Penny Bridge, Forgotten New York



1903, Vernon Avenue Bridge, Department of Bridges of the City of New York

1939, Head of Dutch Kills, Merchants' Association of New York

and the Creek was crisscrossed with more rail and road bridges than it has even today.

By this time, new modern port facilities in New Jersey that handled standardized container ships were taking over much of New York City's port functions. Meanwhile, the historically pollution-heavy industries like refineries, fuel depots, tanneries, or metal processors were relocating to new facilities on cheaper land in the suburbs. New environmental controls for water and air pollution, and the globalization of trade, caused the most noxious industries to abandon Newtown Creek for places with less stringent pollution controls.

By the new millennium, industry along Newtown Creek had dwindled to a shadow of its former activity, though the area remains active and its land, far from abandoned. Major gas utilities still utilize the long-standing maritime infrastructure, while warehouses, wholesalers, and other businesses continue to be attracted to Newtown Creek for its central location and supportive infrastructure.

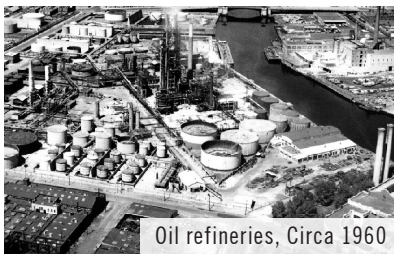
1921, Sunshine Biscuits in Dutch Kills, Merchants' Association of New York

2011, LaGuradia Community College in Dutch Kills, Mitch Waxman

THE START OF OIL IN THE CREEK

In 1854, Canadian geologist Abraham Gesner, who had discovered a way to derive kerosene from coal, moved to Newtown Creek and secured patents for the new North American Gas Light Company, the country's first kerosene refinery. This new type of industry grew rapidly with the discovery of drillable crude oil in Pennsylvania, and the first modern oil refinery was established on the Creek in 1867. At its peak the creek boasted more than 50 petroleum processing plants including large sites for Standard Oil.

Standard Oil, Circa 1907

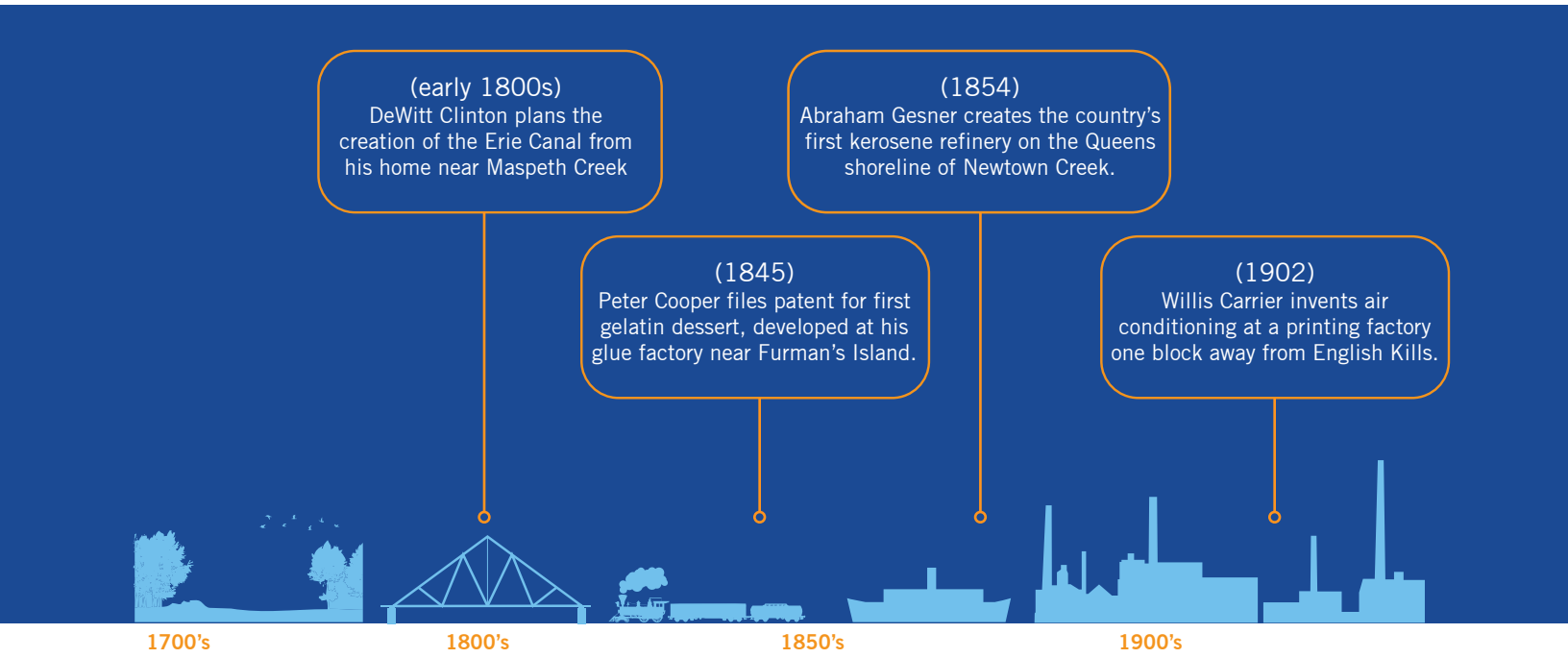


Oil refineries, Circa 1960

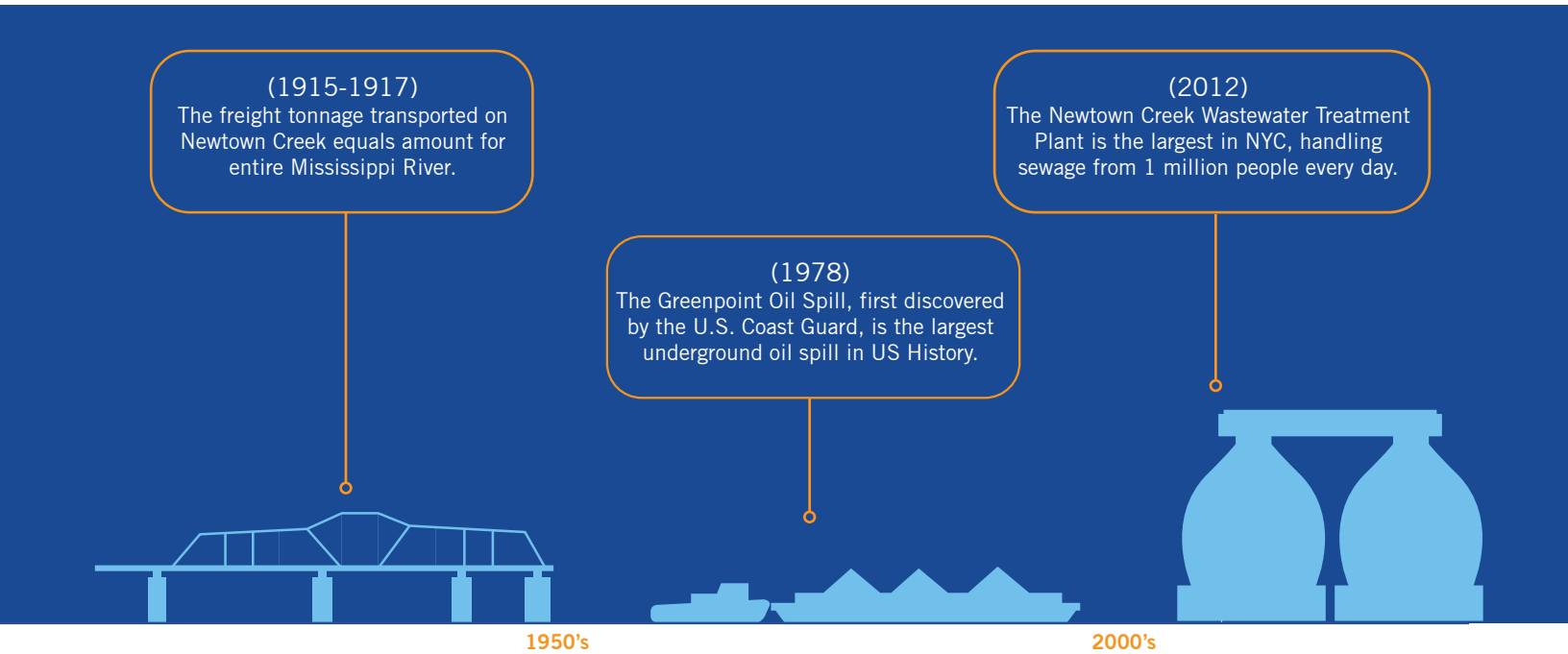
Kinder Morgan, Today

Timeline

1613	Dutch settlers first survey Newtown Creek; soon clash with the local Mespat tribes.
1856	City of Brooklyn begins dumping raw sewage into Newtown Creek via the sewer system.
1867	Charles Pratt constructs first modern oil refinery in the United States on the banks of the Creek.
1879	New York State (NYS) Department of Health begins first investigations into environmental problems at Newtown Creek.
1880	First record of Newtown Creek being dredged for maritime use.
1882	Locust Hill Oil refinery disaster; 30 million gallons of oil burned away or seeped into the ground.
1891	The 15th Ward Smelling Committee is established to identify pollution sources on the Creek.
1911	Sherman Antitrust Act breaks up Standard Oil Trust into 7 sister companies. On Newtown Creek it becomes Standard Oil Company of NY: SOCONY.
1916	NYC Zoning Resolution designates industrial Newtown Creek area incompatible with residential uses.
1919	Sone & Flemings SOCONY refinery disaster; 20 acre facility burnt down and 110 million gallons of oil lost.
1921	Congress approves a dredging project to eliminate Mussel Island in favor of a "Turning Basin" to improve maritime navigation.
1950	Manhole covers in Greenpoint explode into the air; early signs of massive underground oil contamination.
1966	Riverkeeper – then called the Hudson River Fishermen's Association – is formed in order to help citizens bring lawsuits on behalf of clean water.
1966	Mobil Oil ends oil refining at Newtown Creek; that same year it drops SOCONY from its name.
1967	Newtown Creek Wastewater Treatment Plant (WWTP) is constructed.
1978	US Coast Guard pilots patrolling NY Harbor report a plume of oil seeping out of the bulkheads of Newtown Creek near Meeker Avenue in Greenpoint.



1989	Five Greenpoint women form the Concerned Citizens of Greenpoint, a local environmental advocacy group, that would lead efforts to shut down the Greenpoint Incinerator, fight for the cleanup of the Greenpoint Oil Spill and upgrade to the Newtown Creek WWTP.
2001	Keyspan demolishes The Maspeth Holders, two enormous gas tanks constructed in 1927 and 1948.
2002	Newtown Creek Alliance (NCA) officially formed; first Riverkeeper patrol of Newtown Creek.
2004	Riverkeeper files suit against ExxonMobil for historic and ongoing violations of the Clean Water Act and the Resource Conservation and Recovery Act in Newtown Creek.
2007	The Newtown Creek Nature Walk, designed by George Trakas and managed by NYC DEP opens.
2008	Manhattan Avenue Street End Park opens in Greenpoint.
2010	The EPA adds Newtown Creek to its National Priority List of Superfund sites.
2010	Then NYS Attorney General Andrew Cuomo announces the $25 million settlement of the lawsuit against ExxonMobil.
2011	The $19.5 million Greenpoint Community Environmental Fund (GCEF) is established by the NYS Office of the Attorney General and the DEC.
2012	Newtown Creek Brownfield Opportunity Assessment (BOA) study concludes, led by NCA, Riverkeeper and the Greenpoint Manufacturing and Design Center.
2012	Superstorm Sandy floods large sections of industrial land around the Creek.
2016	Newtown Creek Superfund Community Advisory Group (CAG) finalizes the 12 CAG Principles that started this Vision Process.
2017	Phase 1 of the new Kosciuszko Bridge opens; old bridge demolished.
2017	The NYC DEP submits a Long Term Control Plan to reduce Combined Sewage Overflow levels in the Creek by 61%.



Wildlife & Ecosystems

"Healthy ecosystems offer many benefits, or ecosystem services, in a self-sustaining way: nourishment, clean water, protection from floods and erosion, and recreational opportunities such as fishing, bird watching, and sightseeing. When ecosystems are degraded or lost, the ecosystem services diminish or disappear."

–The State of the Estuary 2012, The New York- New Jersey Harbor & Estuary Program.

Before the industrial revolution, Newtown Creek was home to a diverse array of marine wildlife typical of salt marsh estuaries. It was a drainage basin for the surrounding watershed and was a quiet and protected tributary that fed into the quickly moving waters of the Lower East River and larger Hudson River harbor. The abundance of fish, clams and oysters was well documented by both native Lenape tribes and early European settlers; indeed, New York City was famous for its oysters and plentiful fisheries. Pre-industrial conditions on the Creek played a key role in that productivity – the historic estuary at the heart of the tidal exchange through the harbor fed and sheltered this ecosystem.

Over the past 150 years, however, chemical pollution and sewage dumping severely affected the ecosystem of Newtown Creek. Compounding the burdens on local wildlife was the dredging and channelizing of the wetlands as the Creek was shaped into its current form and any remaining habitats for birds, fish, and oysters were destroyed to make room for shipping and waterborne commerce.

In the past decade, as the waterway has slowly improved with the remediation of a number of upland pollution sources, we have witnessed an inspiring resurgence of native wildlife. Recent surveys by scientists working to develop Superfund remediation plans, alongside citizen scientists and naturalists with the Newtown Creek Alliance, have documented over fifty species of birds and more than thirty species of fish and shellfish in the Creek – a true testament to the ability of even a toxic, heavily-polluted, industrial channel in the most densely populated urban area in the nation to bounce back.

While current and planned improvements to water quality and sediment toxicity will improve baseline ecological conditions in the coming decades, the lack of habitat will continue to be a limiting factor in wildlife populations. In narrow stretches of the Creek, like the Mile Two reach detailed in this Vision Plan, smaller aquatic wildlife needs blue corridors – aquatic habitat space available to hide in and search for food – along the Creek's edge to allow passage from the mouth of the Creek to the head-end tributaries. For birds and other wildlife, degraded waterfronts and a lack of intertidal habitat has forced most birds to use trash booms and collapsed bulkheads as primary habitat; until such time as a complex intertidal is brought back to the Creek, its full potential will not be realized.

Such a robust and long term ecological rebound is possible if regulatory agencies, the City, and surrounding communities ensure the health of marine wildlife is a priority and part of a new legacy for Newtown Creek.

A variety of bivalves are present in the Creek, including clams, oysters and, most notably on recent surveys, ribbed mussels. During 2016, Newtown Creek Alliance counted over 200,000 mussels along the shorelines of every reach growing wherever there seemed to be viable habitat (rigid shoreline surfaces) for mussels to attach. Oyster populations are much more limited and only present in areas closer to the mouth of the Creek at the East River, but there is significant potential for oyster habitat.

The Creek is a critical part of the New York Harbor for wildlife, depending on the Creek for nesting, foraging, hunting, and resting. Although current wildlife in Newtown Creek may be limited, it is profoundly resilient. Recent pilot-restoration projects are successful and even a limited reduction of on-going pollution has encouraged a resurgence in marine wildlife. Critical ecosystems services provided by native marine wildlife have measurable benefits. If we can resolve the waterway of the legacy chemical contaminants, commit to the resources and vision to eliminate CSOs, we would find a waterway nothing short of swimmable and fishable, and resilience within our grasp.

FILTER FEEDERS

A variety of bivalves are present in the Creek, including clams, oysters and, most notably on recent surveys, ribbed mussels. During 2016, Newtown Creek Alliance counted over 200,000 mussels along the shorelines of every reach growing wherever there seemed to be viable habitat (rigid shoreline surfaces) for mussels to attach. Oyster populations are much more limited and only present in areas closer to the mouth of the Creek at the East River, but there is significant potential for oyster habitat.

BIRDS

A number of shore birds are common in Newtown Creek, taking advantage of returning populations of fish and other marine wildlife as a stable food source. Notable species include herons and egrets, kingfishers, cormorants and osprey, though these birds are usually only on the Creek in low densities, and often not at the same time. The presence of predators high on the trophic food web usually indicates healthy aquatic wildlife populations.

PLANTS

Building on previous surveys, Hudsonia and Newtown Creek Alliance are currently mapping and identifying all plant life within 100 meters of the shoreline. Over a hundred species have been identified to date. With a mixture of native and non-native species observed this past fall, the survey will continue throughout 2018. There are very few areas along the Creek that have been cultivated or intentionally planted; much of the plant life is wild and growing on abandoned areas or private properties.

FISH AND CRABS

Although not advisable for consumption, many species of fish and crabs are present in Newtown Creek including striped bass, eel, and blue crab. Some of the most common species include grass shrimp and killifish; recent runs of menhaden schools have also been witnessed, showing that at least along the surface of the Creek there can be sufficient dissolved oxygen for large schools of fish.

Climate Vulnerability

There are 140 waterfront properties within the 100-Year flood plain along Newtown Creek.

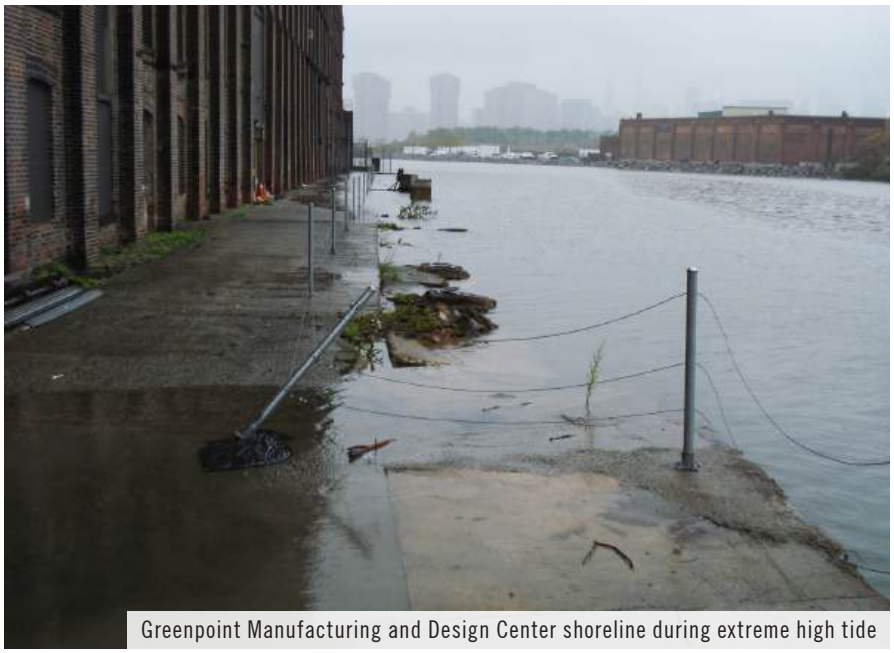
Upland in Newtown Creek's watershed, industrial and commercial corridors bake in the summer sun, leading to air quality impacts and heat related complications of all kinds – endangering workers and residents alike. At the waterfront, rising seas and fiercer storms erode the edges of Creek-facing properties, threatening the economic sustainability of the Industrial Business Zones and washing more and more pollution into the waters. Wetter years mean additional sewage and street pollution wash into the Creek while colder winters weaken infrastructure.

In short, as has been proved time and again, Newtown Creek – as a low-lying watershed largely covered in pavement and parking lots – is vulnerable to rising seas, storm surges, flooding, ecosystem shifts, and other hallmark impacts of a changing climate.

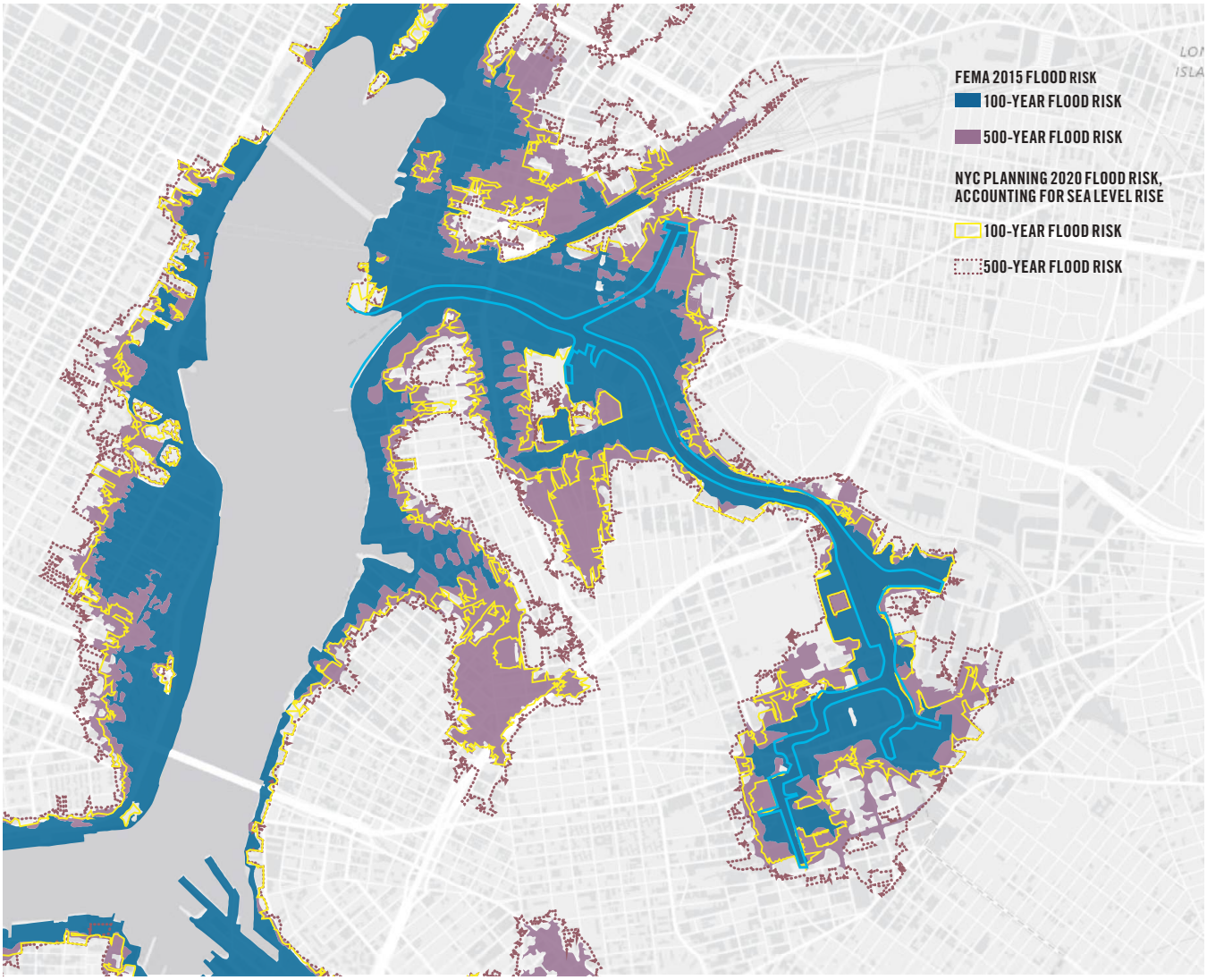
In 2012, during Superstorm Sandy, the waters of Newtown Creek rose, streets flooded, and sites along both banks of the waterway were inundated. The aftermath of the storm saw hazardous materials and solid waste pushed far up into the surrounding community, and building, warehouse, and facility damage from which the community is still recovering. In contrast, in 2011 Hurricane Irene brought a deluge of rain and winds that flushed just about everything in the watershed down streets, into storm sewers, and across waterfront lots – directly into the Creek.

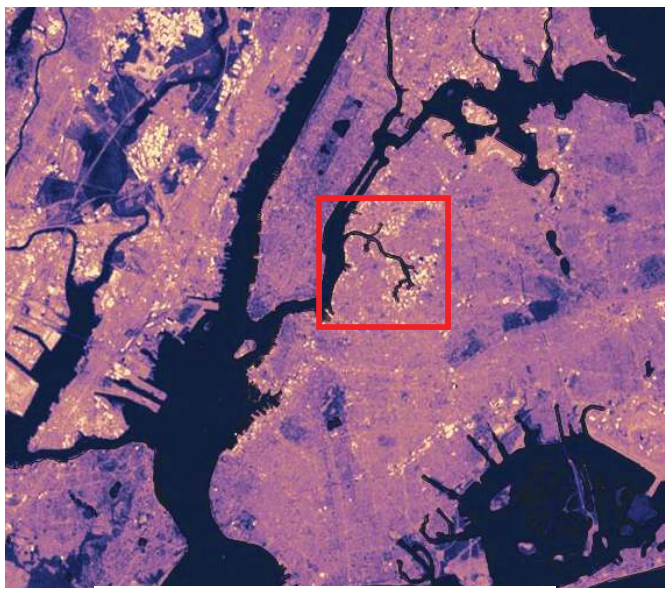
These impacts are made much more devastating given the unique characteristics of the Creek and its watershed. First, because the area surrounding the Creek is largely covered in pavement, roofs, and parking lots, water can only go into the storm drain system which can only hold so much water. Those systems can be overtaxed in even small storms (down to a tenth of an inch of rain or snow melt). Second, whether flooding downhill, or surging up, the Creek's waterfront is not only at the center of any major storm, but it is also where some of the region's most critical infrastructure is located – energy facilities, the Newtown Creek Wastewater Treatment Facility, local waste transfer stations, and food distribution hubs. Third, most of the commercial buildings around the Creek were not designed to withstand the storms or surges that threaten these floodplains; electrical systems, storage, vehicle maintenance stations, and fuel tanks are all at or below ground level – squarely in harm's way.

As detailed in the rest of this Vision, there are solutions to these problems. Street trees and curbside green infrastructure temper heat waves (providing local cooling and shading buildings), help mitigate air pollution, and absorb stormwater. Soft shorelines and wetlands soak up rising seas and act as filters to keep debris off the streets and out of the main channel of the Creek. Designing communities and drainage watersheds with resilience in mind (using berms or buffer zones along property lines, for example) can mitigate flooding and provide access for reconstruction or storm response. Taking a hard look at these solutions will be vital for the continued economic, environmental, and social resilience of this community.



Greenpoint Manufacturing and Design Center shoreline during extreme high tide





Temperature (cool to hot)

Vegetative cover (more to less)

NYC Open Data

Pollution Sources

COMBINED SEWERS

Under approximately 60% of the Newtown Creek watershed, the sewer system (that conveys wastewater from homes and businesses to local wastewater treatment plants) is physically combined with the stormwater system that captures rain and snowmelt from streets and sidewalks. This Combined Sewer System overflows at several discharge points around the Creek; the four largest discharge "CSOs" are at the head ends of the major tributaries to the Creek. Collectively, over 1.2 billion gallons of combined sewage are discharged each year from the CSO system into the Creek; triggered by as little as a tenth of an inch of rain. This pollution contains everything found on a street mixed with human waste, pharmaceuticals, micro plastics, viruses, and a number of other types of solid waste. Significantly, these discharges are also sources of new toxic materials into the Creek, further contributing to the Superfund contamination problem.

SEPARATE STORM SEWERS

For about 40% of the watershed that drains to Newtown Creek, the sewer system and stormwater systems are disconnected underground. This "separate" stormwater system directly conveys all rain and snowmelt from the streets and sidewalks into the Creek, without any filtration or treatment. Oils, plastics, pet wastes, and a host of other types of pollution directly impact the health of the waterway. Most of the separate stormwater system of Newtown Creek is zoned for heavy industrial and commercial use, meaning parking lots, open industrial sites, depots, and energy sites can also directly impact the Creek during rainstorms. As with CSOs, these discharges are also sources of new toxic materials into the Creek, further contributing to Superfund contamination.

DIRECT DISCHARGE

In addition to the above runoff sources, there are a number of buildings, lots, street-ends and overpasses that border the Creek and send stormwater directly into the waterway, without ever entering a sewer system. Oils and fuels, exhaust and brake dust, plastic debris and garbage can all end up in the Creek carried by wind or storm water.

GROUNDWATER FLOW

Contaminated groundwater is a significant concern for a healthy Newtown Creek due to the industrial history and resulting spills, leaks, and seeps of various hazardous materials throughout the watershed. Contaminated groudwater flowing towards the Creek's edges and bulkheads is a principle issue facing the Superfund clean-up planning process. The EPA is now working to determine how best to remediate upland sites, in conjunction with NYS DEC, to prevent further chemical contamination from entering the Creek.

INDUSTRIAL OPERATIONS

In addition to generating stormwater, some industrial operations around the Creek can contribute additional sources of pollution. In some cases debris and dust can blow or fall off the edges of waterfront parcels, and the edges of those parcels themselves can crumble into the Creek. In other cases sites have been found illegally pumping pollution directly into the Creek or operating stormwater discharge systems without state permits. Industrial operations are not always sources of pollution – proper stormwater management plans and work site best management practices can prevent most of, if not all, sources of industrial pollution.

OIL DUMPING, SPILLS, AND SEEPS

From the first days of oil refining in the Newtown Creek watershed, oil (and related fossil fuel products) has been spilled into the Creek and its surrounding watershed. At just one site along the Creek, the ExxonMobil site, millions of barrels of oil pooled below Greenpoint, leading to a number of lawsuits and a decade-long remediation effort. Currently, at least two active oil seeps (with oil discharging at a slow but steady rate) are contributing to ongoing oil pollution along the Creek's waterfront. Illegal oil dumping is an irregular yet damaging occurrence.


East River
Jackson Ave
Queens Blvd
Long Island Expressway
Brooklyn-Queens Expressway
NEWTOWN CREEK WASTE-WATER TREATMENT PLANT
McGuinness Blvd
GREENPOINT OIL SPILL
Metropolitan Ave
STATE SUPERFUND PROGRAM
RESOURCE CONSERVATION AND RECOVERY
BROWNFIELD CLEANUP PROGRAM
VOLUNTARY CLEANUP PROGRAM
NAG-IDENTIFIED ADDITIONAL POLLUTED & REMEDIATED SITES
NEWTOWN CREEK WASTEWATER TREATMENT PLAN
GREENPOINT OIL SPILL
CSO OUTFALL LOCATION

Water Quality

As one of the most polluted waterways in the country, the Creek is burdened by toxic contamination and organic pollution, and, in turn, the wildlife that could be expected in an estuarine arm of New York Harbor is severely limited. It is also generally unsafe for human contact, severely limiting its role as an asset to the City's residents and visitors. In order to better understand the water quality impacts to this system, a number of entities have collected water quality data within Newtown Creek over the past decade, including NYC Department of Environmental Protection, Riverkeeper, Newtown Creek Alliance, and contractors working as part of the Superfund investigation.

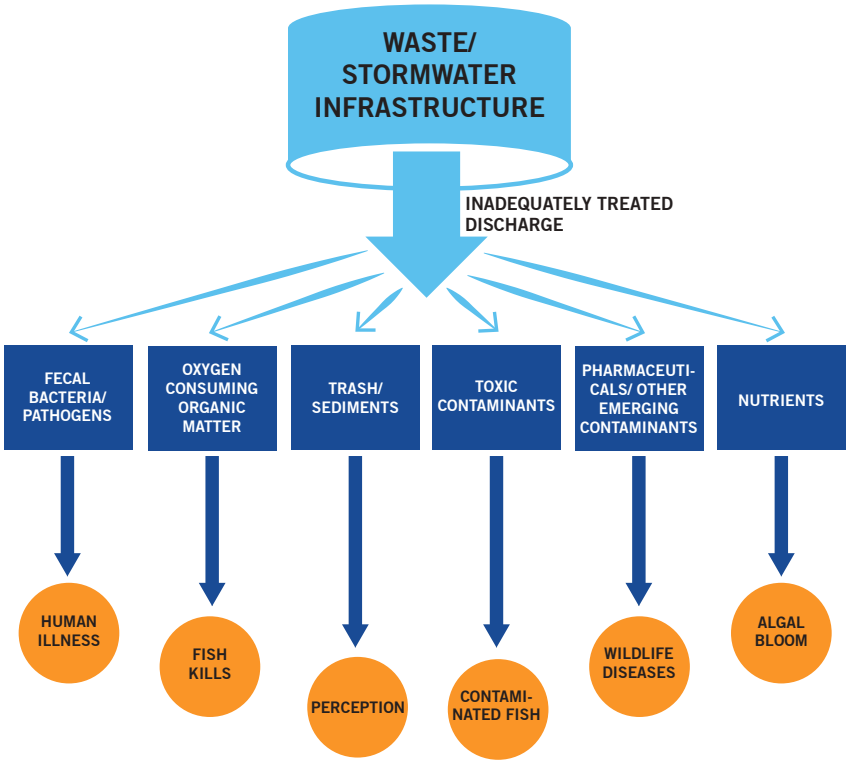
In general, water quality is at its best (relatively, for a heavily polluted, largely low-flow, stagnant waterway) at the Creek's mouth on the East River, and its worst in the head-end or most inland tributaries where waters are most stagnant and large combined sewer outfalls (CSOs) are located. On any given day, with the amount of storm-driven pollution (sewage and toxic contaminants) that enters the Creek each year, the water is at its most impaired state during, and for a few days after, rainstorms.

Under the Clean Water Act, all waters of the United States should be "fishable" and "swimmable" – everywhere. By analyzing dissolved oxygen (DO) levels, we test whether waters are "fishable" – fish and other aquatic life depend on this oxygen to breathe. Waters also must be free of toxic contaminants that can make fish that do survive unsafe to consume. We test how "swimmable" the water is (whether the Creek meets baseline human health risk levels) by measuring fecal indicator bacteria; higher amounts of bacteria indicate higher risks. Beyond immediate health risks associated with pathogens indicated by the presence of these bacteria, sewage and stormwater discharges carry a range of contaminants, including street litter, pharmaceuticals, heavy metals, salts and oils. Nutrients associated with sewage fuel algae blooms that, in addition to sapping dissolved oxygen levels, can be ugly, or worse, toxic.

We use this data knowing that it doesn't provide a complete picture – waters with high oxygen levels can still be devoid of habitat and swimmers are rightly advised to avoid toxic waterways (especially those listed by the EPA as Superfund sites) even if there are low levels of sewage that day. Odors, oil sheens, floating debris, and underwater noise all impact whether the Creek and its aquatic ecosystem is healthy and safe.

DISSOLVED OXYGEN

The amount of dissolved oxygen present in water is a key factor in determining the health of a waterway and the ability for fish, crabs and other marine wildlife to survive there. DO can be influenced by multiple factors including water temperature, nutrient pollution and the flow of water. In Newtown Creek's head-ends (near the top of Dutch Kills, English Kills, Maspeth Creek, and East Branch), where the tidal exchange is barely felt and water sits largely stagnant, this lack of flow – coupled with the significant volume of sewage pollution (rich in nutrients and organic content) – drives down the DO levels, creating hypoxic (low oxygen) and anoxic (no oxygen) conditions. Warmer water holds less oxygen so DO levels are also typically lower in summer months, Creek-Wide. Finally, over the course of any given day, oxygen levels fluctuate

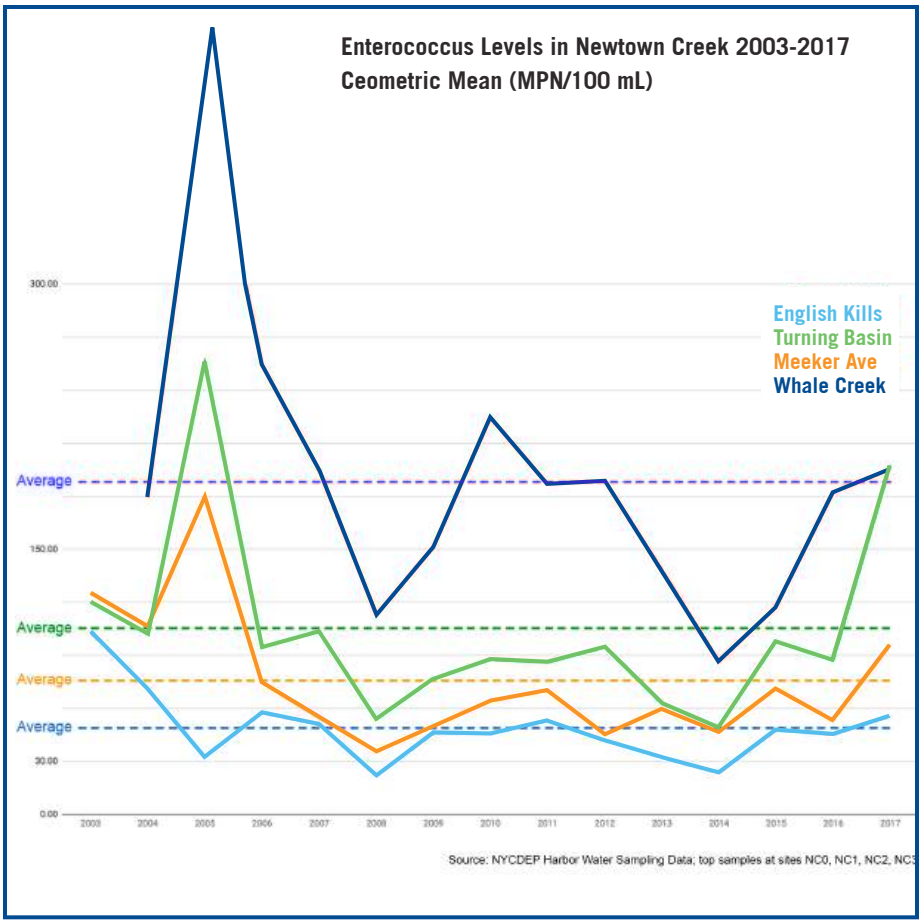


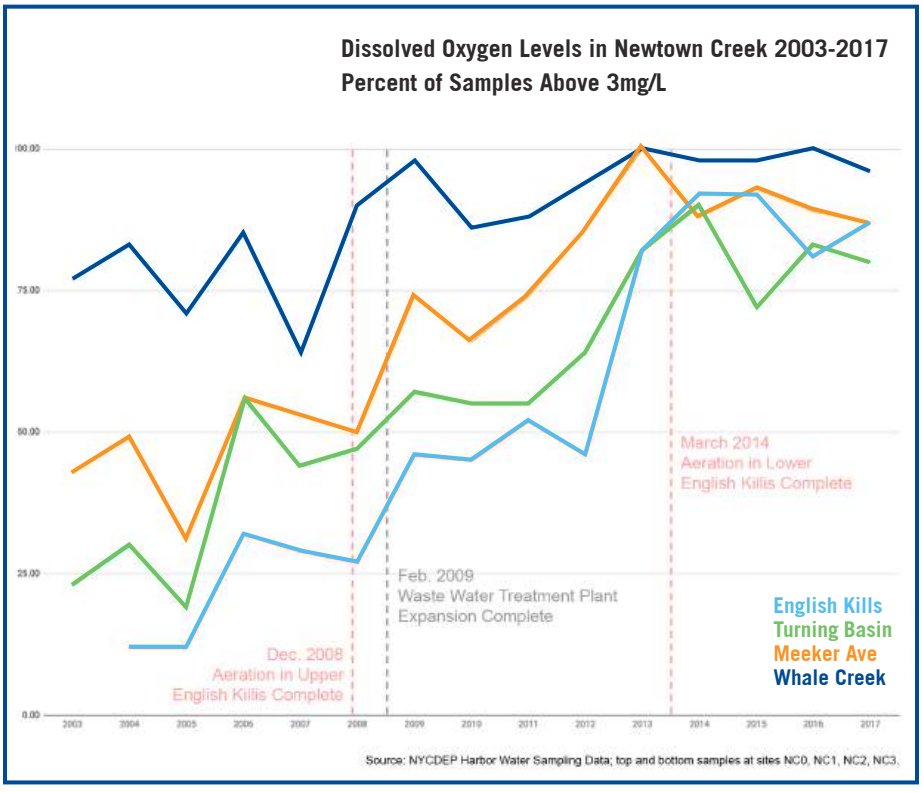
– from lows late in the night and at low tides, to highs in the mid-afternoon and at high tides. These changes can be a burden to the ecosystem; being able to breathe during the day but not at night is simply not ideal for fish.

After decades of uniformly low DO conditions, in the early 2000s NYC DEP began installing an aeration system in the lower parts of the Creek to mechanically increase the amount of oxygen in the water above state required levels of 3 mg/L – basically, bubbling up air into the Creek from pipes laid across the bottom. This system has been highly controversial since 2009 when it came online. The recreational boating community was – and remains – concerned about aerosolization of pathogens or contamination (where that pollution becomes airborne, where people can breathe it in), as well as aesthetic impacts. In 2017, the State and City announced they were open to scaling back planned expansions of this aeration system (into Dutch Kills and a large portion of the main channel of the Creek) pending further review. At best, it is a band-aid, solving one symptom but not the underlying causes of significant habitat degradation.

PATHOGENS

Enterococcus (known informally as "Entero") is a sewage indicator bacteria used by federal, state and city agencies in determining whether a waterway presents a threat to recreational users of the water. These indicator bacteria indicate risk – meaning that a swimmer, boater, or citizen scientist does not necessarily have anything to fear from the bacteria by itself. Instead, the science shows that when water samples are high in Entero, they are also usually high in





viruses or other pathogens that can cause a number of types of illnesses.

Entero levels are almost always highest in the Creek following rainfall due to the sewage overflows from the City's combined sewers. Most areas in Newtown Creek typically require three or more days following CSO activity to recover to “safe” levels – three rain-free days of tides washing the Creek’s sewage into the East River. As would be expected, areas with more stagnant waters and proximity to large and frequent CSO outfalls have higher levels of Entero and take longer to “recover” – as with DO, meaning that the upper tributaries of the Creek are most impacted.

Currently, the State of New York measures pathogen contamination statewide with another indicator – fecal coliform. The EPA hasn’t recommended fecal coliform since 1986, and nearly all, if not all, other states have updated standards based on the EPA’s 2012 Recreational Water Quality Criteria. In a recent review of this standard the EPA called New York’s continued use of fecal coliform "scientifically indefensible." Despite some recent reductions in sewage overflow, most areas of Newtown Creek still fail to meet these Clean Water Act standards, nearly a half century after the law’s passage. The Creek remains burdened by well over a billion gallons of combined sewage and stormwater pollution per year from CSOs.

INDUSTRIAL LEGACY

Throughout the 19th century, New York City was the focal point for much of the nation’s industrial innovation. New refineries, manufacturing plants, and other pollution-prone industries were popping up throughout the region – centered in and along Newtown Creek – and the movement of raw materials and refined products on the City's waterways drove the local economy. While this industrial revolution was taking place, there was little thought toward environmental protection; marshlands and productive waters were to be tamed and harnessed, and were the place where waste and mistakes were discharged. Newtown Creek was an epicenter for this sort of activity. As far back as 1896 the City of Brooklyn’s Department of Health had already mapped 37 heavy manufacturing and industrial operations along Newtown Creek’s eleven miles of shoreline that were known to generate high levels of contamination. These operations included fertilizer, paper, and glue manufacturers, dye and chemical works, petroleum and gas operations, and waste-removal companies.

GREENPOINT OIL SPILL

These uses continued for more than a century, culminating in a ravaged waterway, devoid of all but the heartiest of life. In 1978, the US Coast Guard, in a routine flight, observed oil sheens in the Creek, seeping from the Greenpoint shoreline. The discovery and ensuing investigation began to illuminate the extent of the damage caused by over 150 years of contamination. The seeping oil proved to be coming from a plume of oil under more than 50 acres of the eastern half of Greenpoint. Between 17 - 30 million gallons and forming an underground oil reservoir, it was the largest oil spill in US history before the 2010 *Deepwater Horizon* disaster. This legacy belongs largely to the industry giant ExxonMobil.

The awareness of this plume triggered an investigation and larger assessment of contamination on the waterway, leading several community members and Riverkeeper, and finally the State District Attorney, to pursue lawsuits demanding environmental justice for the Creek and its surrounding impacted communities. This legal action culminated in federal recognition and eventually triggered review by the EPA and the ultimate 2010 designation of Newtown Creek as a Superfund site.

TOXIC CONTAMINATION

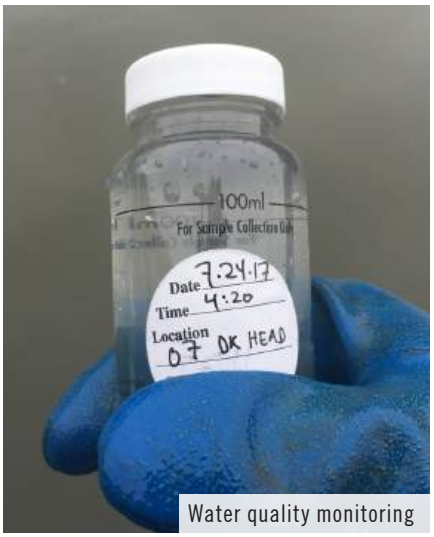
The bottom, sides, and waters of Newtown Creek are heavily contaminated; the sediment of the Creek is particularly

Visible contamination in the creek

thick with pollution from centuries of industrial and urban runoff and colloquially known as 'Black Mayonnaise.' Although toxicity varies in different areas of the Creek, there are a number of chemicals of concern present in the surface and subsurface sediments that are directly tied to specific historic operations and facilities such as oil refining and fuel storage, manufactured gas plants, copper refining and waste handling. Many of these chemicals, including PCBs, PAHs, heavy metals and hundreds of other hazardous compounds, can be carcinogenic, impair mental development and lead to lasting chronic health issues for humans and wildlife alike. There are various pathways to absorb such toxins, including repeated exposure to the sediments or through consumption of fish, crabs or shellfish present in the Creek. The Superfund process includes a thorough analysis of risks to human and ecological health that can result from exposure to toxins in the Creek – an evaluation which will help inform remediation plans and strategies going forward and ultimately create a safe and clean baseline from which many of the envisioned projects in this report will rely upon.

A VISION OF CLEAN WATER

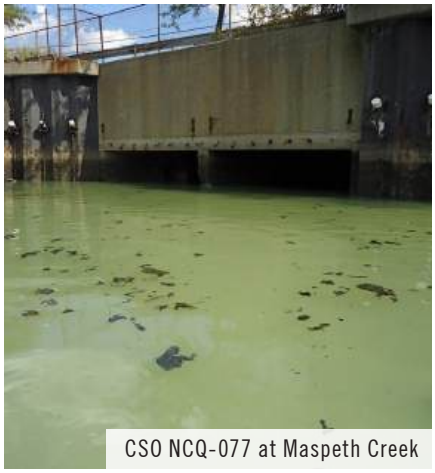
Despite all the contamination, stormwater discharges, and sewage pollution, it is important to recognize that water quality in Newtown Creek is better than it has been in the past century. Wildlife is returning and more and more people are utilizing the waterway as a resource for recreation and education. A thorough remediation of contaminated sediments, large-scale investments in capturing CSO pollution, and the elimination of other ongoing sources of toxic discharges will be major stepping-stones on the path toward a waterway that can support a broader diversity of wildlife and allow for greater human interaction with no health risk. This report outlines a series of revitalization projects that will both address and rely on drastic environmental improvements in the Creek. While water quality has improved, much more needs tobe done to achieve the community's clean water goals in Newtown Creek.



Water quality monitoring


Collected oil sample from surface water


Boom to capture floatables


CSO NCQ-077 at Maspeth Creek


Upland trash at Greenpoint Ave storm drain

Superfund Process

Over the past decade, Newtown Creek has seen a resurgence in on-water recreation, has faced ever-increasing climate change risks, and has become a living laboratory for restoration. These aspects of the Creek's past, changing present, and emerging future, however, pale in comparison to the century-and-a-half of industrial contamination that has marred the entire Creek watershed. Thus, one of the most important issues to consider in developing a vision for the future of the Creek – indeed, the impetus for this very effort – is the Creek's Superfund status.

More formally known as the Comprehensive Environmental Response, Compensation, and Liability Act, or CERCLA, the federal Superfund law was enacted by Congress in 1980, and allows the EPA to force polluters to clean up (in this context, this is called remediation) oils and hazardous wastes that threaten human and ecological health.

All Superfund sites must first be listed on the federal National Priorities List (NPL), then undergo a – loosely – three step process: Remedial Investigation, Feasibility Study, and, once a final Record of Decision is adopted, site clean-up. Newtown Creek was listed on the NPL in 2010 and by 2011 the EPA had finalized the Creek's status as a "Superfund site."

The Remedial Investigation (RI) process is where the EPA assesses the state of contamination. During this process the EPA also assesses risks to human health and the environment. To date, the Remedial Investigation (conducted under the oversight of the EPA) has shown elevated levels of PCBs, PAHs, heavy metals and a number of other hazardous chemicals throughout the Creek.

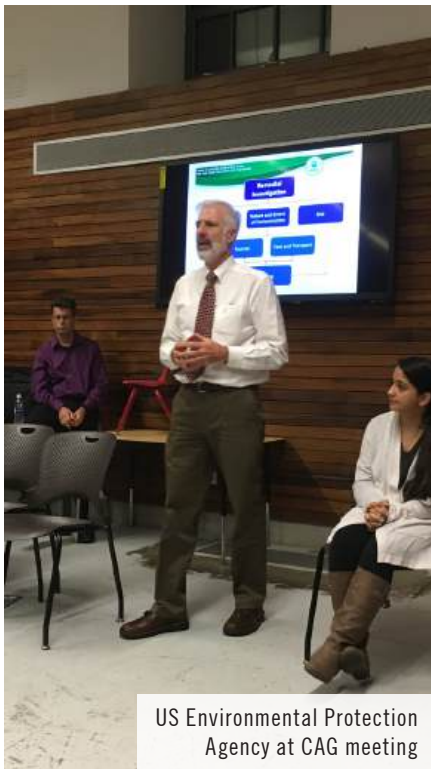
Concurrently with the RI (utilizing information and insights obtained during the RI process), the EPA requires the polluters develop a site clean-up Feasibility Study (FS). The FS is the mechanism for the development, screening, and detailed evaluation of alternative remedial actions; the when, where, and how of the clean-up plan, for the EPA's review.

As of the completion of this Vision Report the RI/FS process is still underway. After several years, two phases of research plans painted an insufficient (to the EPA) picture of the scope of Creek contamination; more work has been ordered for 2018 to fill recently identified datagaps. Indeed, members of the public – including Riverkeeper and Newtown Creek Alliance – have also called for more testing for issues such as ecosystem biodiversity, air quality, and ebullition.

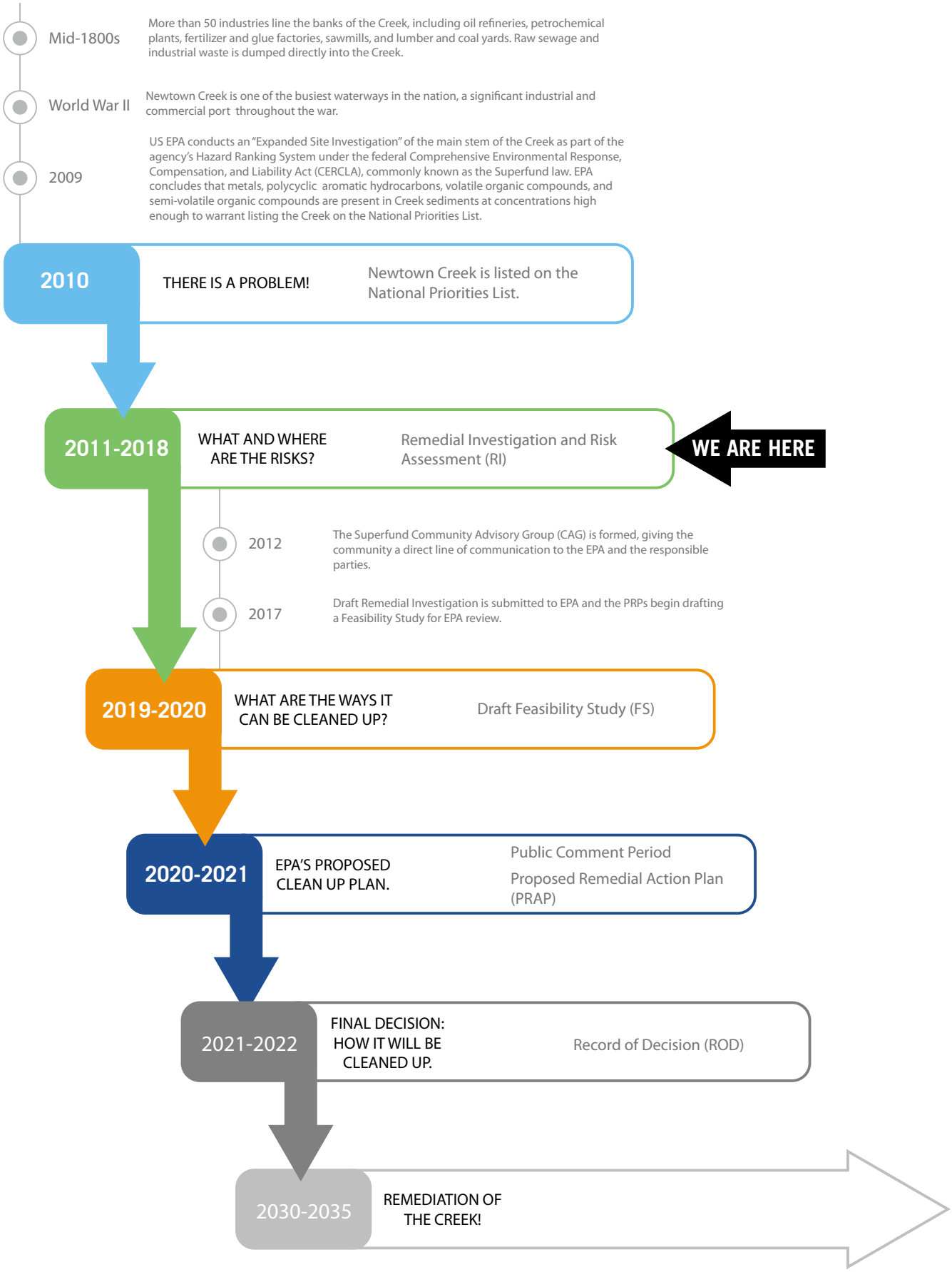
That said, the knowledge collected to date from throughout the Creek has been immense. Water, sediment, air, and soil samples were collected throughout the Creek – from the water's surface (and the air above it), the water column, the Creek's muddy bottom, and from deep below the bottom of the Creek. Along the edges and bulkheads, and in upland areas in the Creek's watershed, groundwater contamination and migration has been tested. Point sources such as drain pipes, combined sewers, and stormwater flows have all been sampled. As the characterization of the Creek continues, the community is presented with a clearer understanding of the state of contamination within the Creek as well as the sources of new contamination entering the Creek from the sewers, stormdrains, and groundwater.

Armed with this knowledge, the EPA next develops the details of a proposed clean up and memorializes that into an official, final, Record of Decision (ROD). The ROD is based on the RI/FS research, but also takes into account "input of the NYS DEC and various federal agencies." This process also includes community involvement and input, largely through regular Community Advisory Group (CAG) meetings.

Thus, unlike street-ends, bridges, bulkheads, or storm-sewer systems, each of which can be immediately improved to create recreation, resilience, or ecosystem value for the community around Newtown Creek, remediating the contamination within – and flowing into – the waterway will likely take decades.



US Environmental Protection Agency at CAG meeting


Mid-1800s
More than 50 industries line the banks of the Creek, including oil refineries, petrochemical plants, fertilizer and glue factories, sawmills, and lumber and coal yards. Raw sewage and industrial waste is dumped directly into the Creek.
World War II
Newtown Creek is one of the busiest waterways in the nation, a significant industrial and commercial port throughout the war.
2009
US EPA conducts an "Expanded Site Investigation" of the main stem of the Creek as part of the agency's Hazard Ranking System under the federal Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), commonly known as the Superfund law. EPA concludes that metals, polycyclic aromatic hydrocarbons, volatile organic compounds, and semi-volatile organic compounds are present in Creek sediments at concentrations high enough to warrant listing the Creek on the National Priorities List.
2010
THERE IS A PROBLEM!
Newtown Creek is listed on the National Priorities List.
2011-2018
WHAT AND WHERE ARE THE RISKS?
Remedial Investigation and Risk Assessment (RI)
WE ARE HERE
2012
The Superfund Community Advisory Group (CAG) is formed, giving the community a direct line of communication to the EPA and the responsible parties.
2017
Draft Remedial Investigation is submitted to EPA and the PRPs begin drafting a Feasibility Study for EPA review.
2019-2020
WHAT ARE THE WAYS IT CAN BE CLEANED UP?
Draft Feasibility Study (FS)
2020-2021
EPA'S PROPOSED CLEAN UP PLAN.
Public Comment Period
Proposed Remedial Action Plan (PRAP)
2021-2022
FINAL DECISION: HOW IT WILL BE CLEANED UP.
Record of Decision (ROD)
2030-2035
REMEDIATION OF THE CREEK!

Community Advisory Group (CAG)

EPA's then-Regional Administrator Judith Enck stated in 2010 when the agency listed the Creek as a Superfund site: "Newtown Creek is a key urban waterway, which provides recreational and economic resources to many communities." "Throughout the investigation and cleanup," she continued, the EPA "will work closely with the communities along the Creek to achieve a revitalization of this heavily contaminated urban waterway."

That community collaboration takes the form of the Creek's Community Advisory Group, or CAG. The CAG is designed to serve as an ongoing vehicle for information-sharing, discussion, and, where possible, consensus-building regarding decision-making related to the Creek's clean-up. Its members represent a diverse cross-section of key stakeholder interests, including affected property owners, concerned residents, community and civic groups, environmental organizations, and local businesses. The Newtown Creek CAG is led by two co-chairs and a steering committee. The following vision principles were developed by the CAG Steering Committee in April of 2016:

Community Advisory Group Meeting

1. **REMOVE ALL CONTAMINATED SEDIMENT**
2. **ADDRESS CSOS AND STORMWATER DISCHARGE**
3. **MAKE SAFE FOR FISH CONSUMPTION**
4. **IMPROVE WATER QUALITY TO SWIMMABLE LEVELS**
5. **PROTECT AND PROMOTE MARINE ECOSYSTEM**
6. **SHORELINE RESTORATION IN TRIBUTARIES**
7. **ALLOW FOR NAVIGATIONAL CHANNELS**
8. **PRESERVE INDUSTRIAL CORE**
9. **CONTINUED MIXED USE OF WATERWAY**
10. **ROBUST COMMUNITY PARTICIPATION**
11. **INCREASED PUBLIC ACCESS FOR EDUCATION + RECREATION**
12. **TAKE INTO ACCOUNT CLIMATE CHANGE**

POTENTIALLY RESPONSIBLE PARTIES

Federal Superfund law imposes liability on any parties responsible for – in whole or in part – any hazardous contamination. This liability is retroactive (parties may be held liable for acts that happened before Superfund's enactment in 1980), joint and several (the parties can each individually be liable for the entire clean-up cost), and strict (liability can be found for any contamination, whether or not it was intentionally released).

When determining whether to list a site on the NPL, as the EPA did here in 2010, the agency also begins to identify the entities which may ultimately be responsible for clean-up costs. These "Potentially Responsible Parties," or PRPs, may also be ordered to pay for natural resources damages, health assessments, and ongoing review once the initial clean-up is completed.

At Newtown Creek, six potentially responsible parties (PRPs) were originally identified for their role in contributing to the contamination present in the sediments and waters: ExxonMobil, BP, Chevron/Texaco, Phelps Dodge, National Grid (who, together, formed the "Newtown Creek Group") and the City of New York. More PRPs were identified in 2017 and the EPA may, at any time, add more PRPs to the Creek's list of past or present polluters.

Remedial Investigation (RI) Efforts

Potentially Responsible Parties

We asked the Potentially Responsible Parties to share with us their role in the Superfund process and their commitment to a future Newtown Creek. This is what they shared:

NEWTOWN CREEK
SUPERFUND SITE

The five companies known as the Newtown Creek Group are:

ExxonMobil
BP
Chevron/Texaco
Phelps Dodge
National Grid

Newtown Creek is an urban waterway impacted by over 150 years of industrial and municipal use. Today, it remains an economic engine for the region, used by industry and business to produce and transport critical goods and materials, and by NYC as part of its infrastructure. According to the Department of City Planning, the Newtown Creek Significant Maritime Industrial Area is home to more than 20,000 jobs, including many well-paying union positions.

The US EPA is planning for the Superfund remediation of Newtown Creek. Concurrently, NYC has committed to maintaining the area's core industrial nature and will implement a Long Term Control Plan for the creek.

Consistent with these plans, the Newtown Creek Group (NCG) is conducting a comprehensive remedial investigation and feasibility study of the creek. Based on scientific data, our priority is to develop a cleanup plan that is effective, efficient, and protective of human health and the environment given regional background conditions.

The NCG envisions a future where a cleaner Newtown Creek continues to serve as an important maritime industrial waterway, and a resource enjoyed by all who work and live nearby.

www.newtowncreek.info/

NYC Environmental Protection

The City is committed to a clean and healthy Newtown Creek, and has already contributed about $20M towards investigating and understanding the nature and extent of chemical contamination that is the focus of the Superfund process. This work is in addition to the billions of dollars invested and committed to improving Newtown Creek through a multitude of NYC programs and initiatives, consistent with the Clean Water Act, to improve water quality in the Creek, such as the City's Long Term Control Plan, the MS4 Program, and the Green Infrastructure Program. These programs and efforts provide synergistic opportunities for enhanced water quality and community benefits. The unfortunate reality is that Newtown Creek has had a long and complex history of chemical pollution and degradation – but by working with the neighborhood residents, stakeholders, US EPA and the other involved parties, the City will help the Superfund process achieve the goal of identifying and addressing sources of contamination and risks to the ecological community and human health. We believe this vision of a healthier Newtown Creek aligns with a broader Vision and plan for all of NYC, as well as the wishes of the local community and interested environmental groups.

www.nyc.gov/dep

US Environmental Protection Agency

We asked the US Environmental Protection Agency to share with us their role in the Superfund process and their commitment to a future Newtown Creek. This is what they shared:

The decades since the Clean Water Act (CWA) was signed in 1972 have seen profound improvements in water quality throughout the New York Harbor Estuary. Work by New York State, New York City and EPA under the CWA will continue to improve water quality in and around the City. But unfettered industrial activities dating back to the 1800s have left Newtown Creek contaminated with metals, polycyclic aromatic hydrocarbons (PAHs) and polychlorinated biphenyls (PCBs), among other pollutants.

The designation made by EPA in 2010 of the Newtown Creek as a Superfund site will help us realize the ultimate vision for the Creek by giving EPA the authority to oversee the cleanup of the legacy pollution. These efforts are being augmented by efforts that are ongoing to address areas along the Creek that may still be contributing to contamination.

This work is progressing well, and we need continued thoughtful engagement with government partners, the communities and nearby businesses to ensure that our work enhances current and potential future uses of the waterway and its adjacent shoreline while protecting people's health, which is at the core of EPA's mission.

To achieve this, EPA will continue to look to public and private stakeholders, including the well-informed and highly-engaged Community Advisory Group (CAG) organized for Newtown Creek, for advice and consultation in selecting appropriate remedies under Superfund.

Please join our efforts by keeping up-to-date on EPA's Superfund work at Newtown Creek by visiting **www.epa.gov/superfund/newtown-creek**.

Land Use & Zoning

Newtown Creek is a unique legacy industrial landscape in the heart of New York City, bordered by bustling and historic residential and commercial neighborhoods, like Greenpoint, Ridgewood, Williamsburg, Bushwick, Long Island City, Sunnyside, and Maspeth. The majority of the areas surrounding Newtown Creek are zoned as M-3, a specific industrial zoning that only allows for the heaviest manufacturing and industrial uses.

The Creek is also designated a Significant Maritime Industrial Area (SMIA). In 1992, the City established SMIA, as part of the City's Comprehensive Waterfront Plan to protect and encourage concentrated working waterfront uses. Newtown Creek is the largest of the six SMIA areas in New York City, both in terms of employment (nearly 15,000 total in 2008) and size, covering over 780 acres.

Land at the mouth of the Creek, former manufacturing areas, was rezoned for residential use in both Greenpoint and Long Island City under the Bloomberg administration. As the neighborhoods around Newtown Creek face increasing growth, and as real estate developments within areas like Greenpoint, Long Island City, and Bushwick expand for allowable uses including hotels, self-storage and nightlife, these uses often conflict with the goals of preserving the industrial nature of the Creek and jobs therein. The Department of City Planning creates policy and tools that navigate and plan for these multiple and conflicting uses and have the potential to protect industrial areas with their zoning policies.

Later in this document, City Planning's IBZs and Brownfield Opportunity Act (BOA) for the Creek, are analyzed as part of systems solutions, both tools for the community in future planning. The Department of City Planning also shared with us one of their tools to build resilient industry, adaptive measures to protect businesses in the face of climate change, and measures to protect the water and ecological system.

NYC PLANNING

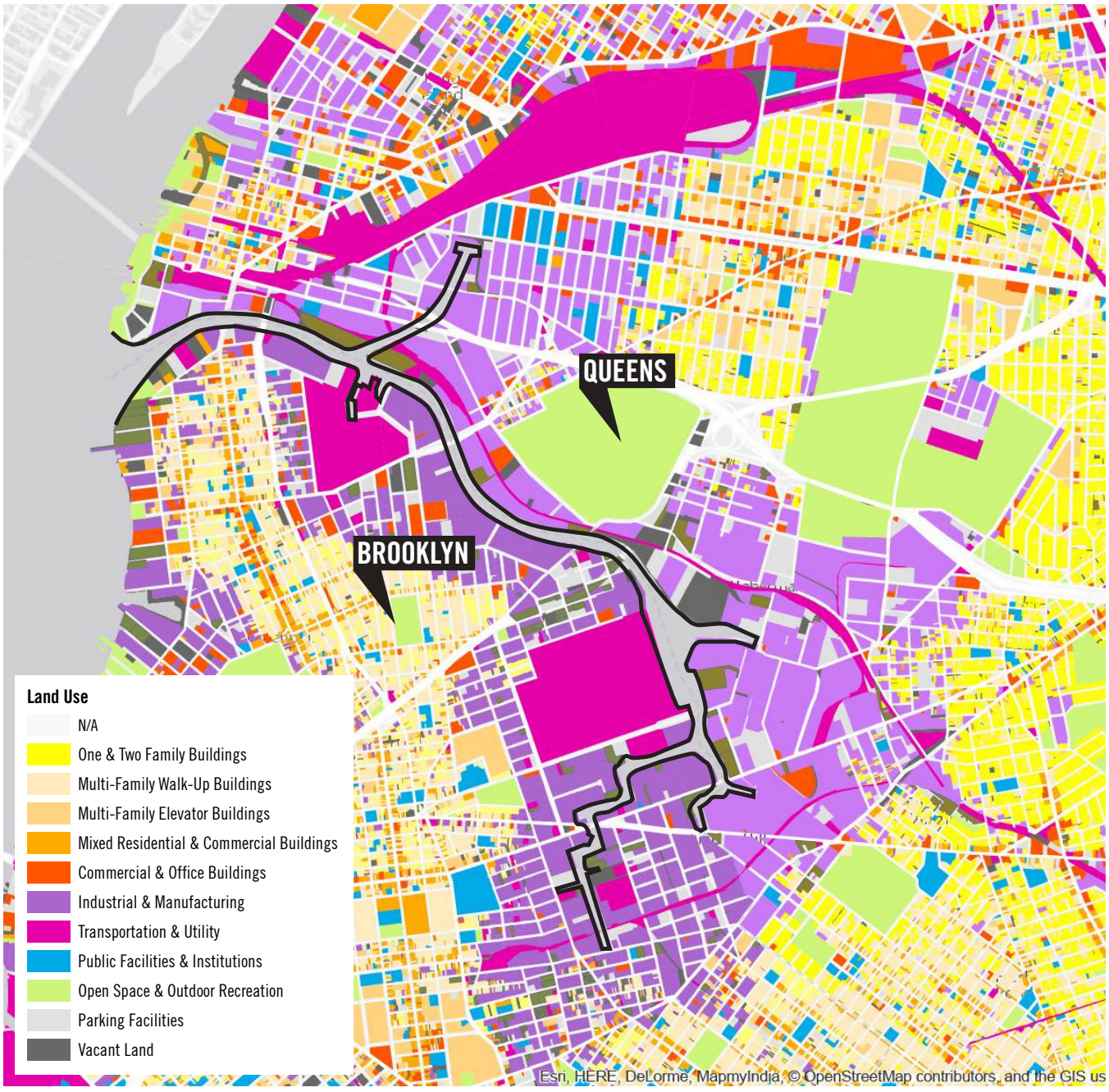
We asked NYC Department of City Planning to comment on their zoning plans around Newtown Creek. Although the Creek is a unifying factor for industry, DCP developed specific plans for separate business zones in Brooklyn and Queens, and this is what they told us:

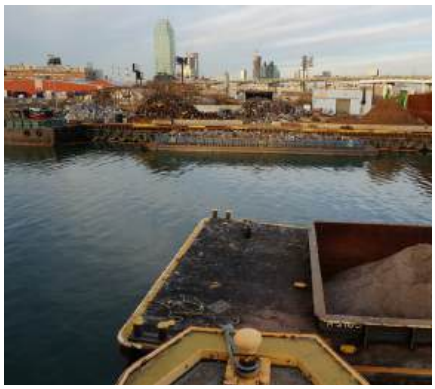
BROOKLYN

The NYC Department of City Planning (DCP) is conducting a comprehensive study of the North Brooklyn Industrial Business Zone (IBZ), which runs along the Brooklyn side of Newtown Creek. Based on the most comprehensive study of an industrial area DCP has conducted in decades, and based on input from the local community, the plan will identify strategies to promote job growth and economic activity in the IBZ. Leveraging Newtown Creek's unique strategic advantage in the geographic center of New York City, the plan aims to ensure that core industrial areas – areas of the most intensive industrial activity – provide essential industrial businesses opportunities to thrive. The plan will also support growth of a diverse mix of 21st century businesses and jobs in more transit-accessible areas.

QUEENS

The NYC Department of City Planning (DCP) is developing a framework for the Long Island City Core Industrial Zone along Newtown Creek. The western portion of Newtown Creek is undergoing transformation through the development of Hunter's Point South, and an area to the east was rezoned to allow for mixed use which will further transform the Creek with potential for waterfront engagement. Moving east along the Creek, the industrial uses become more intensive and these sites are seen as critical to maintaining good jobs and production in the City. Areas between these sites are seen as strong opportunities for place-making and ecological engagement, and can be strengthened with public realm improvements and vision zero strategies to increase safe pedestrian access.


QUEENS
BROOKLYN
Land Use
N/A
One & Two Family Buildings
Multi-Family Walk-Up Buildings
Multi-Family Elevator Buildings
Mixed Residential & Commercial Buildings
Commercial & Office Buildings
Industrial & Manufacturing
Transportation & Utility
Public Facilities & Institutions
Open Space & Outdoor Recreation
Parking Facilities
Vacant Land
Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors, and the GIS us



Working Waterfronts & Communities

The local and regional economies of the communities around Newtown Creek have long been tied to the water. Acknowledging this legacy, the proposals in this vision report aim to protect existing jobs and foster economic growth while also expanding shared connections to, and in support of, a clean waterway.

Industry, healthy ecosystems, and clean water need not be mutually exclusive. The businesses around the Creek play a vital role in the shared resiliency of the waterway and are on the front lines of stormwater management, shoreline design, and public access.

INDUSTRIAL BUSINESS ZONES

Over its eleven miles of shoreline and its 7,442-acre watershed, Newtown Creek has a diverse array of industries across a number of neighborhoods. In three corners of this watershed – Long Island City, Maspeth, and North Brooklyn – business associations are working to advance local environmental stewardship while also ensuring continued industrial and commercial operations. These groups joined us at Visioning meetings, and shared with us their stories:

The **Maspeth Industrial Business Zone** (IBZ) extends along the Newtown Creek's northern border in Queens and is home to more than 850 businesses with over 15,000 jobs across a variety of sectors. Due to its central location and proximity to expressways and airports, Maspeth has a large concentration of transportation, distribution businesses, which serve the entire region. Maspeth's manufacturing sector includes prepared food, soft drinks, commercial printing, and chemical facilities, as well as a wide range of construction-sector businesses.

"These businesses, along with wholesalers, and solid waste collection and recycling companies, provide vital services as well as relatively well-paying jobs for working class New Yorkers," reports the **Maspeth Industrial Business Association**. "The IBZ, spread over 757 acres, is essential to maintaining economic diversity in city," the Association noted.

Located just to the west of the Maspeth IBZ, the **Long Island City (LIC) IBZ** is one of the most active manufacturing areas in the State. According to the **LIC Partnership**, the area is home to over 2,100 businesses providing more than 42,000 jobs which "provide vital goods and services that support the entire New York metropolitan region: high-tech communications equipment, building equipment and materials, film and television facilities, high-tech and high-end design, aerospace, fresh-baked bread, cave-aged cheese, hand-crafted beer, and everything related to the creative side of fashion."

LIC's manufacturing and commercial communities are burgeoning and many of these skilled and creative people would benefit from access to the Creek

and outdoor space. The IBZ surrounds Dutch Kills, the heavily polluted, stagnant tributary that runs from the Creek into the heart of Long Island City.

Historically, Newtown Creek was a highly active industrial waterway. Today, in the **North Brooklyn IBZ**, barges remain a key method of transportation for a number of Creek-side companies handling goods ranging from scrap metal and solid waste to fuel and construction material. Some business that don't actively use the water for transport hope to one day do so; as the team at **Evergreen**, the North Brooklyn Business Exchange, noted, "just one load of materials ferried by barge leads to a dramatic reduction in the number of trucks on neighborhood roads." Waterborne commerce, Evergreen raised at a public visioning meeting, also creates a host of "working class jobs that pay well and are more easily accessible to local residents, including those who may not speak English as their first language."

Few of the enterprises in these business zones actually face the water, and fewer still use the Creek for the movement of goods and materials. That said, these facilities can directly affect water quality of (and access to) the Creek – in the worst cases, these sites are sources of contamination and stormwater pollution that limits the ecological function and recreational potential of the Creek. In the best cases, these facilities are the first adopters of better stormwater capture systems, green infrastructure, accessible sidewalks, street trees, and wayfinding – solutions which return immediate benefits to both the businesses and the Creek.

WATERFRONT COMMUNITIES

Clearly a strong industrial and commercial core builds economic resilience that also has environmental, access, and public health co-benefits. That said, because the Creek was historically one of the most heavily used waterways in the nation it became one of the most polluted waterways in the country as well. Historic industrial contamination (from Creek-side facilities as well as sites throughout the watershed – including the present-day IBZs) put people and the environment at risk. Unfortunately, discharges and dumping continue today (rare, but ever-present); further eroding the ecosystem of the Creek and endangering the neighborhoods around it.

From local elected officials to life-long local residents, the Creek community has worked hard over long decades to push for the Creek's Superfund status and remediation. With legacy contamination slated for removal in the coming years, ongoing pollution sources in line for capture and control investments, and a wave of innovations in green infrastructure and stormwater mitigation (driven in part by those businesses and industries striving to be good neighbors and innovators in pollution control), Newtown Creek's waterfront communities are poised for transformation.

With this potential for change, there is room to shape the type of asset that the Creek is to the surrounding communities. The strong Newtown Creek advocacy community seeks to play an active role in determining how the future Newtown Creek is an environmental asset to their community.

Ultimately, throughout this Visioning process, the community has made clear that Newtown Creek should remain a working waterfront; but it has also demanded that the Creek be protected as a lasting resource for the surrounding neighborhoods. In an urban environment, a working waterfront has the unique ability to play this role in a dynamic and resilient urban ecosystem. Only by planning and developing resilience, remedial, and restoration solutions collaboratively will the Newtown Creek community (inclusive of industry, neighborhoods, and recreational users) create a wholly accessible, healthy, and safe waterway.

Access & Connectivity

This Vision Report aims to build a clean water future for Newtown Creek while ensuring that the community can access these waters both for jobs and recreation.

As a heavy industrial waterway, pathways to the water, though visible from bridges and afar, are challenging and often prohibitive. Visitors must traverse busy truck routes to reach points that are few and far between long stretches of private property. Determining how to encourage and support safe multimodal access to these waterways is paramount.

There are existing small pockets along the Creek's edge stewarded by community members and groups, with a vested interested in enjoying the Creek. During the summer one can visit the North Brooklyn Boat Club, beneath the Greenpoint side of the Pulaski Bridge, where trained boaters lead canoe and kayak trips with a focus on educating guests about the local waterways. Across the Creek in Long Island City, Queens, volunteers at HarborLAB plant wildflowers along their rip rap shoreline. The street-end park at Manhattan Avenue offers residents and workers the opportunity to watch the sun set over the Manhattan skyline as tug boats push barges through the Creek.

Perhaps the most well known existing access point is the Newtown Creek Nature Walk which travels along the shoreline of the city's sewage treatment plant. Built and maintained by the New York City DEP, this unique public space integrates a number of historic and environmental educational components with native plantings and seating areas.

Beyond the Nature Walk, the Creek's legacy of pollution and abandonment has left much of the waterfront unsafe and uninviting. Groups like the Newtown Creek Alliance have been working to improve this situation by spearheading cleanup and replanting efforts at a number of street-end areas that abut the Creek. Sites like Plank Road (58th Road street-end in Maspeth) and Penny Bridge (Meeker Avenue street-end in Greenpoint) have undergone recent grassroots investments, but would benefit from stronger investment by the City. A handful of new publicly accessible areas are being explored by community members and agencies alike - as detailed later in this report.

As with any waterway access discussion, there are key priorities to consider when connecting people to local waters. As the Creek is being restored and remediated, we are at a crucial juncture for setting goals and baseline parameters for access. Community members regularly call for access to the Creek - it is their water resource and open space. They also ask, though, for continued industrial use of the Creek. This intersection of ideas - clean, accessible waters surrounded by industry - was discussed at great length during the visioning process. These ideas are not mutually exclusive. To mitigate the relationship, community planning

NCA HISTORIAN

Perhaps no one has walked around the Newtown Creek more than photographer, blogger and NCA historian: **Mitch Waxman**. Mr. Waxman has led tours within the watershed for nearly a decade, including a 2017 day-long 13- mile walking tour around the entire Creek where many of the ideas found in this Vision Report were vetted. For many, these lengthy tours are a special occasion, for Mitch, it is a usual day at the office. Mr. Waxman describes the Creek as "an industrial and post-industrial landscape of warehouses and waste transfer stations, long tenanted neighborhoods, highways and sewer plants." He points to a number of conditions that impact access and safe pedestrian use, "you have to be wary of the heavy trucking, trucks move about with little expectation of encountering a pedestrian. During the summer, the Maspeth Heat Island Effect will drive temperatures ten to fifteen degrees higher than in surrounding neighborhoods."

Community Partnership Charter School Tour, December 2017

must prioritize safety, clear pathways and wayfinding on the road and in water, so that, as made clear from community members at our visioning sessions and meetings, people can interact with, learn, and enjoy the resource while maintaining an industrial core.

In order to reconnect the community to the Creek, the solutions are clear.

For pedestrians, there must be intentionally located protected pathways and corridors. These pathways must be clearly marked for the benefit of both the pedestrians and the drivers. New signage keeps people in spaces that are safe, draws them to and makes them aware of their water resource, and provides drivers with the cues they need to be aware of the pedestrians and cyclists alike. Further, these pathways have the potential to be intertwined into the City's plan for green infrastructure corridors, and two-wheeled transportation infrastructure. Green corridors help mitigate the urban heat island effect, and help clean the air - protecting communities from traffic exhaust and localized air quality risks.

Cyclists find particular challenges when attempting to navigate over and around Newtown Creek. Though bridge improvements, and the bike lanes constructed as part of the Kosciuszko Bridge provide pathways for cyclists, routes are not consistent or well connected. As **Juan Restrepo** of Transportation Alternatives notes, "the truck thoroughfares and industrial business zones are often the only way to commute from Sunnyside or Long Island City or Forest Hills, to Ridgewood, Bushwick or Greenpoint." Finding ways for the Newtown Creek community to share the road is needed, safe well-marked corridors and pathways create spaces for cyclists to travel throughout the area. Clearly marked pathways through these industrial areas also help to ensure clear routes for the needs of the industrial community.

At vision sessions, community members made clear that planning for improved and safe access to their water resource is a priority. **Mitch Waxman** noted that "when you find one of the intentional points of public access to the water and view the valley of the Newtown Creek for the first time, hidden in the very center of New York City, you realize the potential for the future."

The water is a community resource; planning and intentionality are key to meeting the access needs of the surrounding communities. As **Eric Bruzaitis**, Chair of the Brooklyn Community Board 1 Transportation Committee noted, "the City is currently planning the best way to move people and goods around our rapidly changing neighborhoods, and Newtown Creek can and should be part of North Brooklyn's [and indeed the entire Creek's] transportation future." In all visioning sessions, and meetings with local community members, the challenges and priorities around access were well articulated. Plan so that people and industry can share the resource and plan so that as Mr. Bruzaitis noted, "the Creek's rich history can be celebrated by the new generations who call North Brooklyn home, not as a relic of our past, but as a conduit of our future." This Vision Plan combs through the Creek carefully, finding spaces to access and pathways to reach Newtown Creek.

Stakeholder Visioning Voices

REMEDIATION

Stephen Levin, New York City Council Member - District 33 "While we've curbed the majority of overt industrial pollution, our overburdened sewage system continues to dump hundreds of millions of gallons of sewage a week. Therefore, it is not surprising that to a large part of the community today, Newtown Creek is at best invisible and at worst something to be avoided. We've already started to turn that around. Now more than ever, the community sees the vast potential that winds right through our backyard. It's not a liability, but an asset with great potential."

RESTORATION

Joseph Lentol, NYS Assembly Member - 50th Assembly District "While Newtown Creek has been plagued over the years by environmental degradation, the 2000s signaled its resurgence. Through beautification and increased access, Newtown Creek can return to its former glory of centuries past by providing the communities of Brooklyn and Queens with much-needed open space. Newtown Creek will not only serve as a resource to residents, it will undoubtedly continue to provide habitats for the wildlife that call it home. The preservation of wildlife habitats is essential in New York City's densely populated landscape, and I am certain the ecosystems of New York City will continue to flourish thanks to Newtown Creek."

RECREATION

Rob Buchanan, New York City Water Trail Association "Newtown Creek is an important commercial waterway, and for the city's sake I hope it remains one. But it's also a great place for recreational boating. There's a long, narrow and very protected main channel where you can always find flat water, but also a surprising number of tributaries, coves and quiet backwaters that tempt you to slow down and explore.The creek needs more soft landings --at least one in each neighborhood. And a few more community boathouses too."

RESILIENCE

Carolyn Maloney, U.S. Congresswoman - 12th Congressional District "As the cleanup of the Superfund site continues, it is important to build a resilient waterfront to protect our communities from future storms. The extensive flooding caused by Superstorm Sandy serves as an important reminder that we need to be planning to mitigate the risk of sea level rise. Many of the homes and businesses surrounding Newtown Creek fall within the 100-year floodplain map, and as water levels have risen as a result of climate change our community has become more vulnerable. In order to address these growing concerns, we need to build public infrastructure, such as incentivizing private investment to reduce flooding risks. Investing in flood mitigation now strengthens the local economy and makes our community a safer place to live."

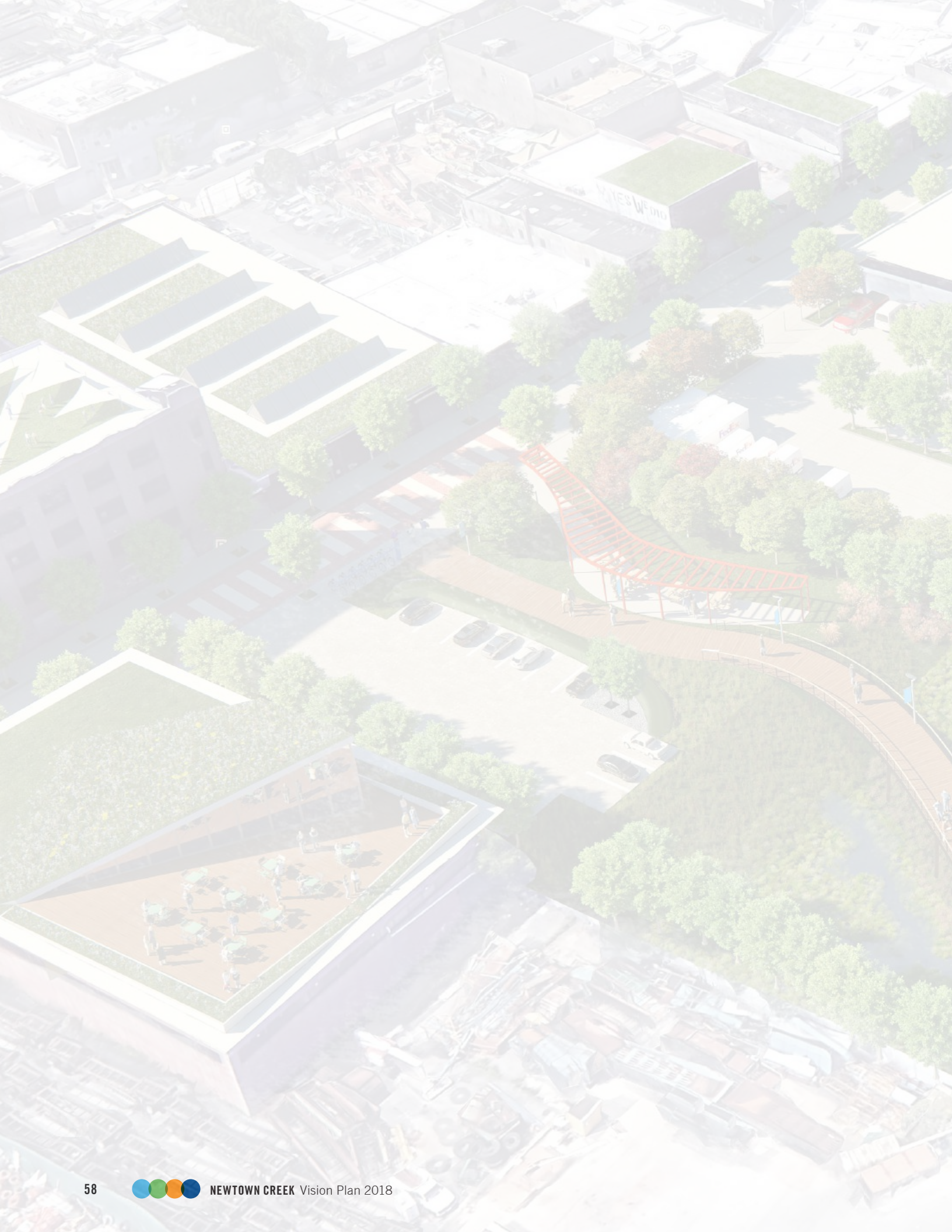
Voices from the Working Waterfront

Elaine Brodsky, Chair of the North Brooklyn Chamber of Commerce "Newtown Creek is an important landmark for North Brooklyn and Western Queens and reflects the industrial heritage of the neighborhoods. Development along the East River waterfront is bringing enormous energy and economic vitality to these communities. Businesses and residents expect and will benefit from additional access to Newtown Creek, where feasible, just as is enjoyed along much of the East River."

Antonio Reynoso, New York City Council Member - District 34 "Newtown Creek initiates a synergy for the neighborhoods that are along its borders in Brooklyn and Queens. For the 34th district specifically, it creates a unique atmosphere for an industrial and manufacturing area. Williamsburg aspires to industrial and manufacturing jobs, which have good pay and low barriers to entry, so are a crucial avenue of opportunity and equitable economic development for surrounding communities."

Tom Outerbridge, Sims Recycling "Newtown Creek remains an important and active industrial area with significant industrial maritime materials movement. Millions of tons of aggregates, recyclables and sewage sludge are shipped out via barge each year. Done properly, such barge activity benefits the City by eliminating the need to move all these materials by truck, with all of the associated traffic congestion and air quality impacts. At the same time, increasing recreational use of the Creek will require ever greater communication and education among all parties, to ensure that safe and active public use of an ever improving public asset does not displace the important functions served by the Creek's industrial maritime operations. Protecting industrial activity while encouraging and supporting public use is a challenge and priority now and for the future."

Andrew Hoan, Brooklyn Chamber of Commerce President and CEO "Today, part of Brooklyn's Innovation Coast is giving way to new manufacturers such as chocolate makers, breweries and the garment industry. The area is also home to essential service providers such as fuel and utility suppliers. Many of these businesses, located near the Creek, are Brooklyn Chamber members who provide countless jobs and resources to the borough.



Reaches

7 REACHES, 1,000 ACRES OF OPPORTUNITY


SUNNYSIDE
Calvary Cemetery has ~3 million burials across 4 sections
~45,000 students at LaGuardia Community College
~10,000 High School and Middle School students study within 12 blocks of the head of Dutch Kills
Calvary Cemetery
First Calvary Cemetery
Mt. Zion Cemetery
Long Island Expressway
404,922 total daily vehicles over Newtown Creek
~2,000 cyclists cross three bridges according to DOT counts and pre bike lane upgrades
MASPETH CREEK & TURNING BASIN
LEGACY POLLUTANTS; PCBS, PAHS, AND COAL TAR ARE FOUND IN HIGHEST CONCENTRATIONS IN THE TURNING BASIN
MASPETH
MILE TWO
GREENPOINT IS HOME TO THE LARGEST TERRESTRIAL OIL SPILL IN US HISTORY. ~13M GALLONS HAVE BEEN RETRIEVED TO DATE
Close to 400 buildings on 302 individual lots, covering 638 acres; from shoreline to first inland public right of way
40% of NYC's waste is brought to Newtown Creek adjacent transfer stations via truck
70 brownfields and potential brownfields have been identified
ENGLISH KILLS
90 DEGREE ANGLES AND LACK OF FRESH WATER INPUTS RESULTS IN HIGHLY STAGNANT WATERS
EAST BRANCH
THE VANDER ENDE-ONDERDONK HOUSE IS THE OLDEST DUTCH COLONIAL STONE HOUSE IN NYC AND HOME OF ARBITRATION ROCK, THE HISTORIC BORDER MARKER OF QUEENS AND KINGS COUNTIES
Rents for all building types in North Brooklyn increased by 100% between 2007 and 2016
Linden Hill Methodist Cemetery
BUSHWICK

Methods & Principles

Our goal in building this document was to create a bottom-up and community driven blueprint for future action in and around Newtown Creek. There have been various visioning projects and exercises in previous years, led by agencies, community organizations and even artists. We sought to expand upon these efforts with a focus on four pillars: Remediation, Recreation, Restoration, and Resilience. Built on the foundation of the Newtown Creek Community Action Group's (CAG) guiding principles, and with the community's lead, this overarching public assessment of Newtown Creek generated a host of specific improvement ideas ready to inspire and activate the community, and ready for implementation.

To engage the community and ensure an open process, we held a community-visioning workshop at Kingsland Wildflowers (a Greenpoint Community Environmental Fund (GCEF) project) that drew dozens of organizations and over a hundred members of the community. We also hosted a vision workshop in Long Island City, presented at and attended Newtown Creek CAG meetings, and met with community boards, local cultural and civic associations, businesses, business associations, elected officials, activists, and the entities identified by the US Environmental Protection Agency as Potentially Responsible Parties to the Superfund site cleanup. The Newtown Creek Alliance hosted multiple clean-up and revitalization projects along the Creek, led walking and boating tours, and provided on-site, and in-class environmental education tailored to the 4-Rs and designed to solicit feedback from all corners of the watershed. Though backed by a nearly yearlong process of community engagement, the conclusions and ideas in this report are still only a starting point for further collaboration. Much more work is needed, and we look forward to this continued dialog.

At Riverkeeper, our approach to any planning is to start at the water – what does it need, and how can we help steward that resource; once we knew that ecological baseline, we moved our analysis and the community conversation inland and into the local communities, the pathways to the water, and the infrastructure connecting the whole system. We then divided the waterways into seven reaches: Mouth of the Creek, Whale Creek, Dutch Kills, Mile Two, Maspeth Creek and the Turning Basin, East Branch, and English Kills. In the pages that follow, we evaluate each of these reaches in four ways:

We identify existing social and environmental conditions and evaluate the reach by remediation, restoration, recreation, and resilience vulnerabilities.

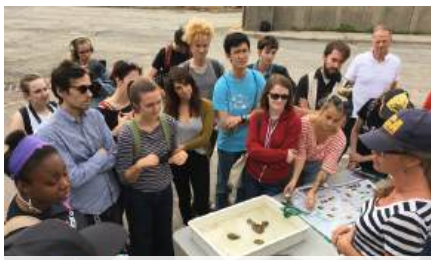
We articulate opportunities within these reaches for achieving environmental improvements, making the waterways safer for human use, protecting ecosystems, and developing deeper, resilient connections (physical and cultural) to the community.

We categorize the community's ideas into two bins. First, "light improvements," that involve little energy and effort, where the ask, the disruption, would be a light lift. Second, "heavy improvements," where the effort involved could be a little bit more to consider – by way of permits, regulations, cost, and time. We also include some aspirational improvements that could vastly transform the waterways, given the right mix of time, space, and community desire.

We highlight projects that the community has pushed most vociferously for, and those where the Newtown Creek Alliance, Riverkeeper, and local planning, science, and professionals see great potential for remediation, restoration, recreation, or resilience. With the planning and design firm of Perkins+Will, some of these ideas have been brought to life on the following pages.

June 3, 2017 Public Visioning Session

July 15, 2017 Stormdrain Stencling



October 15, 2017, Open House NY Public Tour

January 31, 2018 Super Fun/d Series

REMEDIATION

Due to a long history of pollution and industrial use, Newtown Creek is burdened by a legacy of contamination and is a Federal Superfund site. From trash and toxics to sewage and stormwater, the cleanliness of the sediments, shorelines, and marshes of the Creek must be assessed and addressed before these waterways can realize their full potential. Despite the present lack of a final agency decision on the scope of the remediation, addressing the Creek's past pollution is paramount.

RESTORATION

Clean waters depend on functional ecosystems as much as they depend on remediated sediments and shorelines. Investments are needed to repair, rebuild, and reintroduce habitat to both restore ecosystem functionality and protect public health. From wetlands and oysters to soft shoreline edges, we must work to include the ecosystem in every decision made about the water and the waterfront. As a Superfund site, federal and state agencies owe the waterway and the community a restored ecosystem – either with investments on site in the Creek's tributaries or along its bulkheads, natural function will be part of the Creek's future.

RECREATION

Clearly and overwhelmingly, the community's vision for these waterways revolves around inclusive opportunities for environmental education, community boating, fishing, and access to improved parks and waterfronts. In developing any plan for open spaces like Newtown Creek, the community must be able to benefit from restoration and remediation projects. That said, improved access, connectivity to neighborhoods, safe manners of transportation, and facilities on and along the water are all needed for these waterways to reach their full potential.

RESILIENCE

In the face of a changing climate, this highly urban ecosystem must be designed to bounce back, and indeed absorb, the water, social, food, and energy changes happening today. In this Vision Plan resilience means that water, wildlife, and habitat systems can not only survive as conditions change, but help to protect and buffer upland communities. For Newtown Creek, it also means, importantly, that the people, industries, and diverse communities that surround the waterway also persist and thrive as the Creek is cleaned and the potential unlocked. Dynamic shorelines that follow Waterfront Alliance's WEDG guidelines, resilient industry solutions created by NYC Department of City Planning, as well as stormwater management with co-benefits like green roofs, provide mechanisms for a cohesive, resilient and industrial riverside community.

85 COMMUNITY VISIONED PROJECTS

The ideas to follow are just one vision, from some of the stakeholders of this waterway's future; they are flexible and adaptable, but ready to go. In each reach we identified priority projects and a Waterfront Alliance WEDG Project, that are explored in more detail. These are called out with the following symbols:

 Priority Project

 Waterfront Alliance WEDG Project

The **4Rs** are used as a set of lenses to identify need and direct implementation to have co-benefits and the biggest impact.

01. MOUTH OF THE CREEK

Envisioned as a hub for community waterfront access in a resilient urban ecosystem.

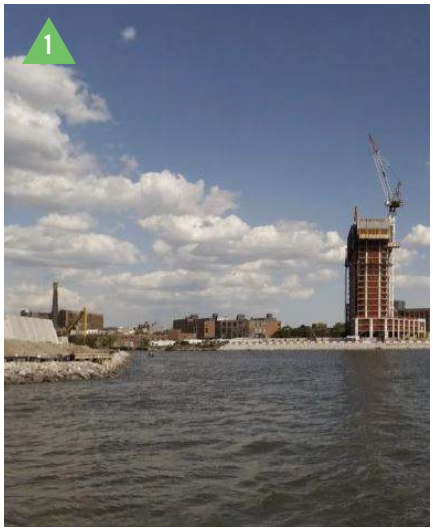
The Mouth of the Creek is the gateway to the waterway, full of activity and well representative of the multiple uses one observes on Newtown Creek. Barges pass in and out of the Mouth into the East River; moving massive quantities of recycling, aggregates and fuel throughout New York City and the larger harbor. The shoreline is flecked with boating clubs, water's edge get-downs, riprap, bulkheads, and crumbling naturalized but often dangerous edges.

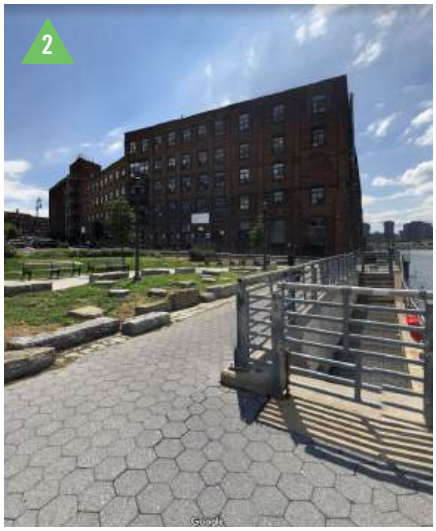
Both the Brooklyn and Queens sides of the Creek, in Greenpoint and in Long Island City (LIC) these neighborhoods are at the forefront of enormous change. There are newly designed waterfront park spaces, and large new residential developments. In tandem with this new development, there is industry and manufacturing going strong right next door, the Greenpoint Manufacturing and Design Center (GMDC), for instance. The upland area at the Mouth of the Creek is a convergence of land uses — industrial zones, infrastructural byways (the Pulaski above and the G train below), residential areas, and small businesses — much of which are extremely vulnerable and prone to flooding.

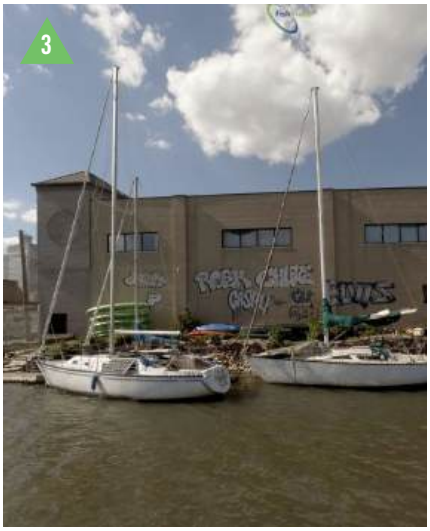
The water entices and unifies the Brooklyn and Queens communities in the Mouth of the Creek. There are established boating and advocate communities on either shore. Despite the four large CSOs that befoul the water in the back of the Creek, tidal mixing with the East River creates some of the best water quality found throughout the waterbody.

This reach is already a shared space for industry and recreational boaters, and this should be embraced and amplified. Upland industrial areas would be wise to adapt to inevitable flooding through resiliency measures that protect from tides and storm surges, and strengthen the community's waterfront presence so it remains a valuable resource.

Spectacular skyline views of Manhattan and calm open waters, the Mouth of Newtown Creek is the point of entrance to one of the hidden cultural and ecological gems of New York City.



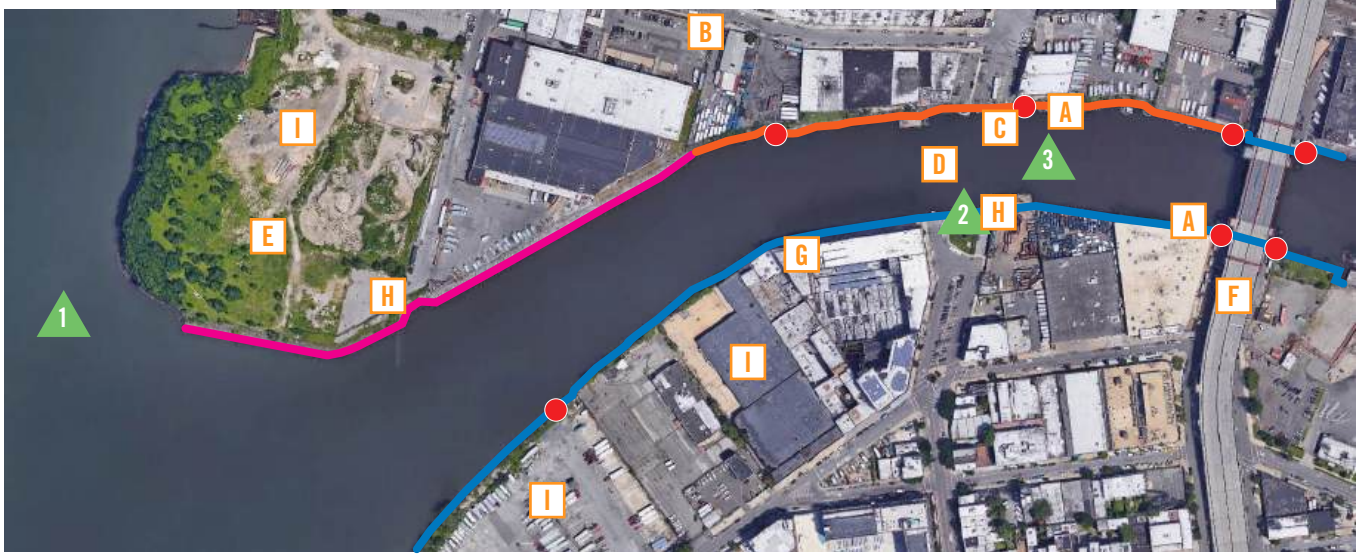




Existing Conditions

- A Active recreational use (North Brooklyn Boat Club and Harbor Lab)
- B Lack of green infrastructure
- C Illegal boat docking
- D Maritime industry alongside recreational boating
- E Hunters Point South development
- F Inaccessible under bridge area
- G Low lying properties
- H Small boat launches
- I Planned residential development

- Intact bulkheads
- Eroding edges
- Naturalized edges
- Riprap edges
- Combined sewer overflows
- Active bulkhead



REMEDIATION

Though the Mouth of the Creek is not without legacy industrial contamination, tidal mixing prevents sediment build-up in water. Shoreline areas and Superfund staging areas may require remediation in the future to remove any contaminants that pose a risk to human health and safety.

RECREATION

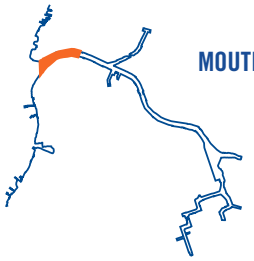
With multiple access points to the water and water quality sometimes within safe levels, this reach is a focal point for the Creek's recreational boating community. Creating pathways to the water and improving access points would make recreation available to the broader community. Determining ways to recreate alongside industry is a crucial part of planning.

RESTORATION

Newtown Creek community advocates utilize this reach as a hub for research and restoration work. Vulnerable or crumbling shorelines throughout the reach represent prime opportunities for habitat creation with dynamic edges and decked over riprap, as well as shellfish structures.

RESILIENCE

Deteriorating shorelines and highly vulnerable businesses makes determining how to protect for flooding and storm surge a priority. Determining flooding adaptations and solutions with co-benefits that enrich the habitat and ecosystem and recreation is an opportunity to build urban ecosystem resilience.



MOUTH OF THE CREEK

REMEDIATION RESTORATION RECREATION RESILIENCE

Light Improvement Projects

1. Long Island City Shoreline Restoration

   Removing sunken boats and, from Vernon Avenue to the marina, creating a new resilient, soft shoreline improves the Creek's ecological function and stabilizes upland properties.

2. Pulaski Bridge Public Space Improvements

   Along the Queens side of the Pulaski Bridge, improvements at the foot of access stairways and bike/pedestrian ramps provide new public spaces.

3. Pulaski Bridge Marina

4. North Brooklyn Community Boathouse

Heavy Improvement Projects

5. Connecting Vernon to Vernon

   Connecting the disconnected ends of Vernon Boulevard (the commercial corridor and the Creek-adjacent blocks), improves pedestrian access to the waterfront, Hunter's Point, and transportation infrastructure.

6. Greenpoint Manufacturing and Design Center Bulkhead

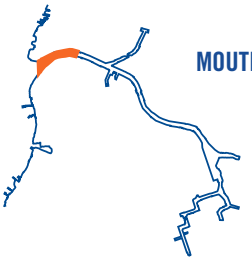
7. Vernon Boulevard Street-End Redesign

Aspirational Improvement Projects

8. Hunter's Point Promenade

   A continuous waterfront walkway connecting Hunters Point South to Vernon Blvd. Sections of the walkway would include a berm to help protect low-lying properties from coastal flooding.


Hunter's Point South Park
5th St
Vernon Blvd
11th St
Borden Ave
McGuinness Blvd
Paidge Ave
Commercial St
Manhattan Ave
Franklin Ave
5
7
1
2
3
6
4
8
EXISTING BUILDINGS
NOTABLE/PROPOSED BUILDINGS
EXISTING OPEN SPACES
PROPOSED OPEN SPACES
FLOATING WETLANDS
GREEN ROOF
SOLAR PANELS
PARKING
EIS-REFERENCED DEVELOPMENT
MAJOR CORRIDORS
PROPOSED PEDESTRIAN WALKWAYS/DOCKS
BROOKLYN BIKE GREENWAY
2020 100-YEAR NYC FLOOD RISK, ACCOUNTING FOR SEA-LEVEL RISE



MOUTH OF THE CREEK

Priority Projects

3 Pulaski Bridge Marina

Parallel marina in Kingston, New York

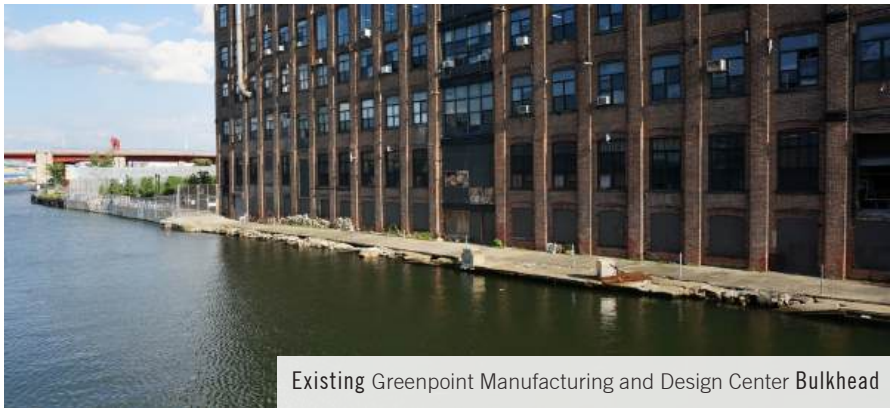
Creating the proper infrastructure to allow for short-term and long-term docking of small vessels helps serve the growing interest and demand for boat access in the area. While most of Newtown Creek is too narrow to accommodate a marina, this 220-foot stretch of shoreline allows for safe access to parallel slips. Proximity to the Pulaski Bridge abutments affords some protection from tug and barge traffic and boat wakes. Waterfront property owner approvals are necessary for this project, as is reconstruction and reconfiguration of area bulkheads.

4 North Brooklyn Community Boathouse

Current programming at the North Brooklyn Boat Club

A new construction multi-story boathouse provides for expanded recreational boating and educational programming at the North Brooklyn Boat Club. With state agency and property-owner support, the new facilities offer expanded indoor boat storage, spaces for year-round programming (focused on environmental education), as well as support for boat building and maritime engineering. With more programming, more access to the site is required, specifically from the McGuinness Boulevard stretch that lies under the Greenpoint, Brooklyn half of the Pulaski Bridge, an area currently inaccessible to the public.

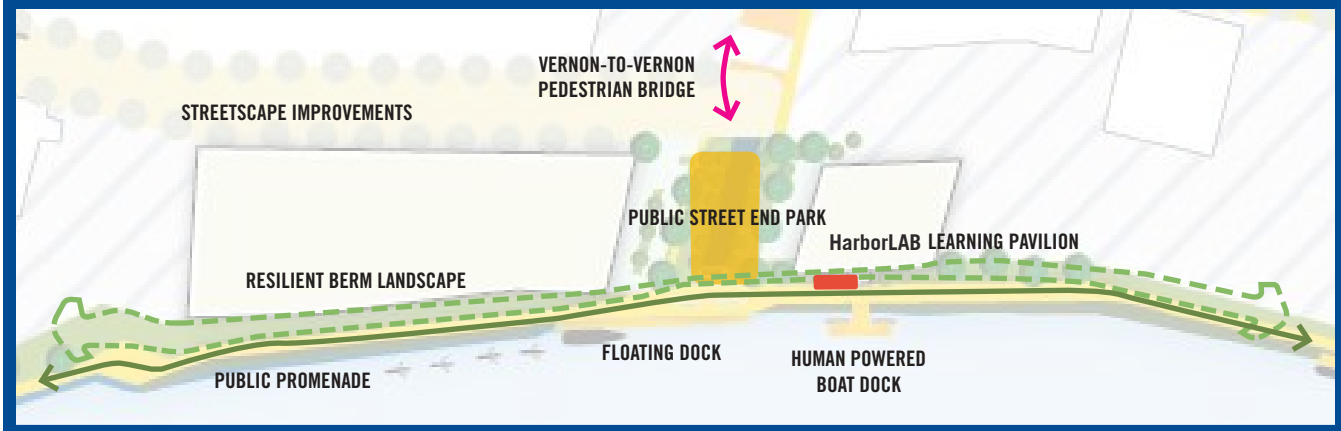
6 Greenpoint Manufacturing and Design Center Bulkhead



Existing Greenpoint Manufacturing and Design Center Bulkhead

The Greenpoint Manufacturing and Design Center is an historic building and one of the lowest lying properties on Newtown Creek, one that regularly floods during extreme tide events. A redesigned and rebuilt edge shores up support for the building while also creating room for storm surge mitigation and additional room for aquatic habitat. With a more structurally-sound bulkhead, the Creek's Greenpoint waterfront is considered for a pedestrian promenade connecting Manhattan Avenue's street-end with planned residential development near the mouth of the Creek and along the East River waterfront.

7 Critical Path Project / Vernon Boulevard Street-End Redesign



A great opportunity to transform this poorly functioning public space into a pocket park that provides direct access to Newtown Creek, a community plaza, green infrastructure, and new aquatic, intertidal, and upland habitat.

Manhattan Avenue Street End Park

Site clean up efforts, HarborLAB

For many years now community activists have advocated for a public park at this location that would partially mirror the Manhattan Avenue Park on the Brooklyn side of this former bridge crossing. The street-end currently consists of a collapsed bulkhead, an eroding edge, perimeter fencing, and poorly planned (or regulated) parking. While a variety of infrastructure limitations (e.g., the G train tunnel, utility lines, and a CSO) limit the potential for the site to be dramatically redesigned, there exists a great opportunity to transform this poorly functioning public space into a pocket park that provides direct access to Newtown Creek, a community plaza, green infrastructure, and new aquatic, intertidal, and upland habitat. The street-end park would also provide boating access for small crafts (such as canoes and kayaks) and larger vessels. With expanded water access facilities, local groups like HarborLAB and historic ships such as the sloop Clearwater are able to build community connections between Queens and the Creek.


ELEVATED PEDESTRIAN BRIDGE TO VERNON AVENUE
IMPROVED STREETSCAPES
STORMWATER GREEN INFRASTRUCTURE
PUBLIC STREET END
PERVIOUS PAVING
RESILIENT BERM LANDSCAPE
FLOATING DOCK
RIVERKEEPER

7 Vernon Boulevard Street-End Redesign

A dymanic new public space with resilient landscape, boat access, and community facilities.

Today the Vernon Boulevard street-end is neglected and currently consists of a collapsed bulkhead, an eroding edge, and poorly planned (or regulated) parking.

02. WHALE CREEK

Demonstrating how industry and recreation can successfully coexist.

The Whale Creek Reach is the most industrially active areas on the water, in no small part due to the regular barge traffic servicing the Newtown Creek Wastewater Treatment Facility. At this site, the City separates debris (like leaves, plastics and disposable wipes) from water which is treated and discharged to the East River and the actual solid sewage which is eventually loaded onto these sludge barges for transit to a de-watering facility elsewhere. This facility is the largest in the City, and treats waste from much of North Brooklyn, Western Queens, and Manhattan's east side, from 70th street on down through Lower Manhattan.

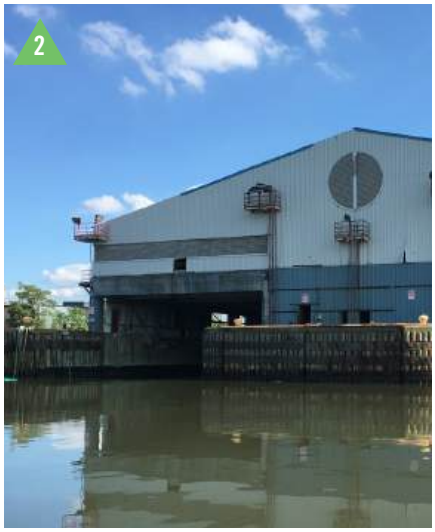
Surrounding the Wastewater Treatment Facility, the Department of Environmental Protection's (DEP)'s "Nature Walk" provides direct access to the water and hosts sculptures, interpretive artwork and native plant gardens. At the Nature Walk, you can usually spot local work crews taking in the vistas of the Creek, barges on both sides of the Creek being loaded with recycling and scrap metal, and local residents out on the water in canoes and kayaks making their approach to the entrance of Dutch Kills (which opens up opposite Whale Creek).

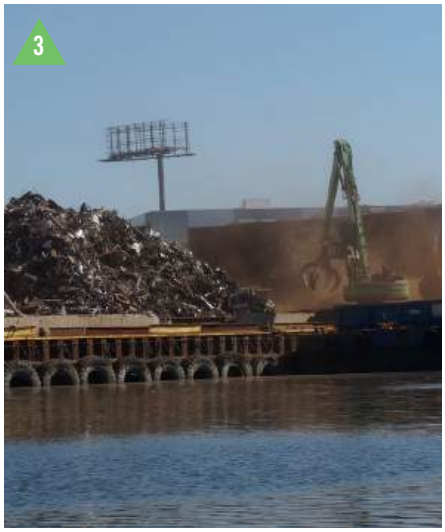
The North Henry Street Public Basin is a sheltered inlet offering researchers the opportunity to pilot floating wetlands and bulkhead planting projects.With almost a half-acre of green roof habitat at the nearby Kingsland Wildflowers building, thriving mussel populations in the water, and an ample waterfront available for public access, this corner of the Creek is becoming a strong public open space asset.

That said, Whale Creek will remain an active sewage sludge-barge loading site, and sits adjacent to a number of open industrial uses – construction aggregate, curbside collection recyclables, solid waste, and materials storage sites. Deteriorating buildings (such as the City's former marine transfer station) and degraded roads upland of Whale Creek are community barriers to fully realizing the potential of the green corridor in the works.

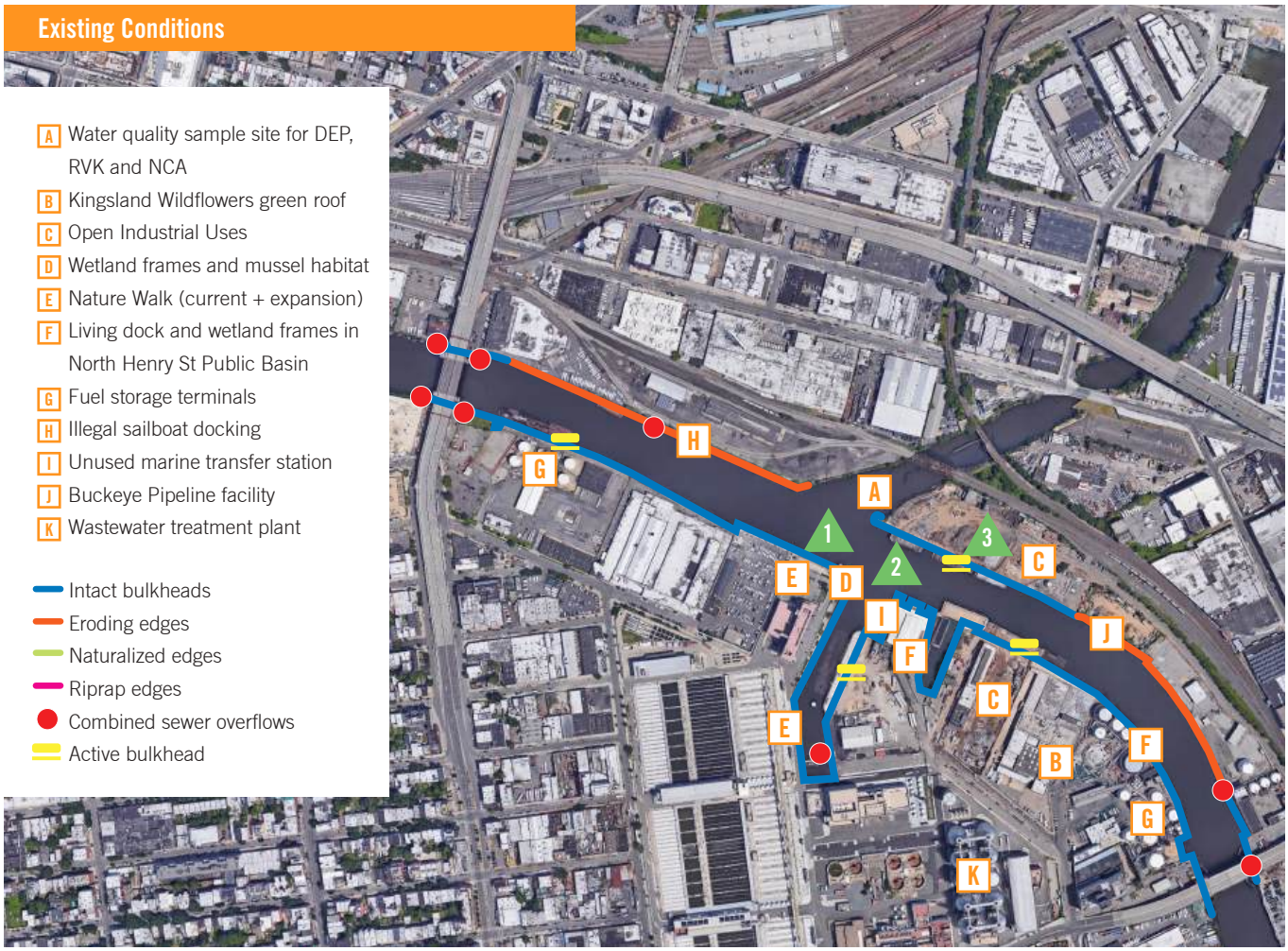
These burdens, however, present an amazing opportunity. With intelligent and inclusive planning, the waters and waterfronts of Whale Creek Reach can be designed in a way that ensures industry coexists with recreation, that resilient waterfront edges also provide new habitat, and that the community can safely access the waterway without affecting the local heavy industrial uses, critical to the functioning of the City and all its inhabitants.

Smart industry, ecological restoration, and community partners are key to the long term health of a productive waterway.





Existing Conditions



REMEDIATION

With several open industrial uses, stormwater discharges, heavy maritime industrial traffic, and combined sewer overflow pollution, ongoing sources of pollution present a short-term remediation need. Historic, legacy pollution is, as with the rest of the Creek, an ever-present concern in this reach. Crumbling waterfront infrastructure is also a remediation concern.

RECREATION

Today, the City's Nature Walk – waterfront access and open space along the Creek-side of the Waste Water Treatment Facility – provides local residents and workers with the beginnings of a recreational hub. Future phases of the Nature Walk, several community-led street end reclamation projects, and proposals for water access at North Henry Street will increase water access opportunities.

RESTORATION

With very little room for habitat restoration in the main stem of Newtown Creek along this reach, most restoration efforts to date have focused on pilot projects involving hanging and floating ecosystem structures along bulkheads. With a renewed open-space focus for the Public Basin at No Name Inlet, the proposed North Henry Street rehabilitation, and the final phases of the Nature Walk, more room for habitat is just around the corner.

RESILIENCE

Crumbling shorelines and deteriorated buildings along many parts of this waterfront present opportunities for waterfront redesigns that prioritize resilience. Utilizing public open space and industrial lots as stormwater capture assets, and creation of softer edges and wetlands where possible, will help with climate resilience. Collaboratively-developed public access and industrial working-waterfront plans will ensure that the area is economically resilient while still providing for multiple uses.

REMEDIATION RESTORATION RECREATION RESILIENCE

Light Improvement Projects

1. Nature Walk Enhancements

   Scheduled for completion by 2020, Phases 2 and 3 of the Nature Walk expand the Nature Walk's continuous waterfront path enhancing access, educational opportunities, and the community's connection to the water.

2. Kingsland Avenue Connection

   Improved pedestrian and bicycle infrastructure, as well as street tree plantings from Nassau Avenue to Greenpoint Avenue, connect the Kingsland Corridor with the Nature Walk.

3. Improved Piers and Industrial Access

   New docks across a portion of the Public Basin inlet allow for safer and more efficient barging operations while providing new ecosystem function and habitat features.

4. Kingsland Wildflowers Expansion

   As of 2017, 20,000 square feet of wildflowers and native plants cover a portion of this Creekside facility. An expanded green roof at this site, and others nearby, opens the door to more community environmental education capacity.

5. Bulkhead Salt Marshes

   Expanding on wetland framework pioneered by researchers at LaGuardia Community College and Newtown Creek Alliance, salt marshes built along vertical shoreline edges provide ecosystem and clean water benefits.

6. Clean Soil Bank and Community Compost Facility

   Open and accessible to the public, a new, large scale community composting facility provides waste management and clean soil services for local distribution.

7. Gateway to Greenpoint

Heavy Improvement Projects

8. Enclosures for Open Use Facilities

   Reduce environmental hazards on local air, soil and water quality by improved containment of potential contaminants on-site. Roofing structures also provide opportunity for stormwater capture or solar panels.

9. Shoreline Restoration at Industrial Lots

   At the largely degraded and overgrown edges of most of the energy and utility parcels along the reach, restoring the waterfront as a soft edge provides ecosystem and resilience benefits to the landowner and community.

Heavy Improvement Projects (cont'd)

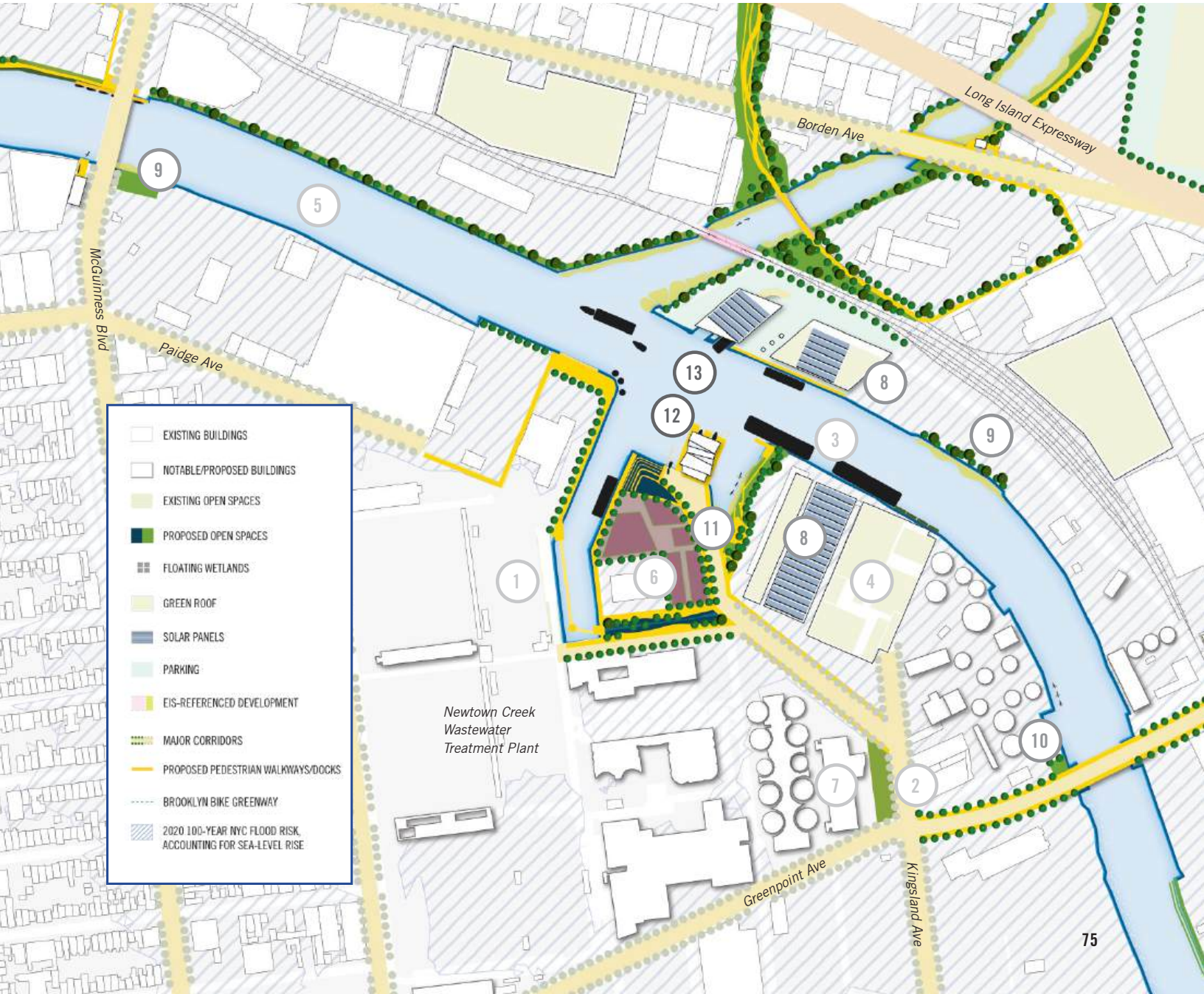
10. Greenpoint Avenue Street End Improvements
    Identified in the Vision 2020 Comprehensive Waterfront Plan as a target location to "provide public waterfront access in a configuration compatible with adjacent industrial uses."

11. Implement Shoreline Restoration at North Henry Street Public Basin

Aspirational Improvement Projects

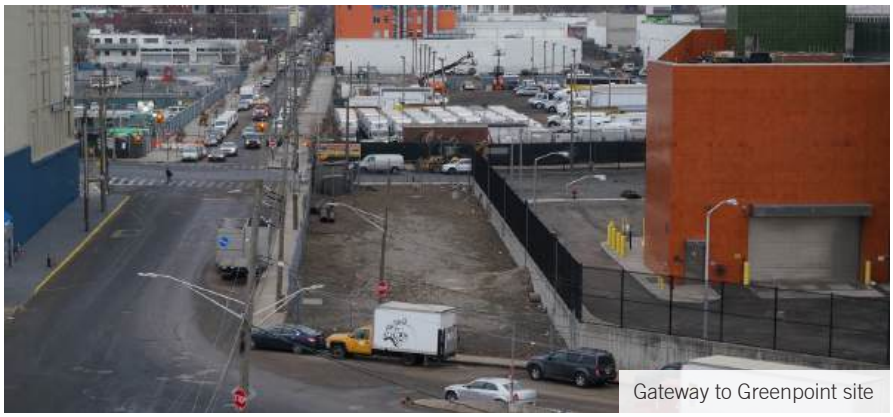
12. Marine Transfer Station Redesign

13. Better Barge Traffic Flow for Industrial Uses



Priority Projects

7 Gateway to Greenpoint



Gateway to Greenpoint site

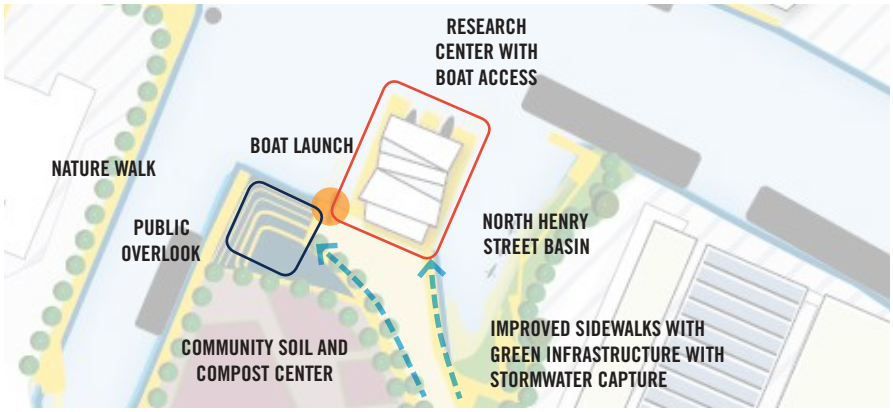
For years, a 13,000 square-foot city-owned parcel on the corner of Greenpoint and Kingsland Avenues sat dormant following construction of the Newtown Creek wastewater treatment plant. With investments in the Creek and its waterfront, and growing community connections between Greenpoint and Sunnyside, this redeveloped Gateway to Greenpoint public open space connects the adjacent bridge and the nearby Nature Walk. The Gateway Park brings new green space, green infrastructure projects, and community gardens to an otherwise empty parcel.

11 Implement Shoreline Restoration at N Henry St Public Basin

Conceptual design for North Henry Street Public Basin shoreline restoration, Terrain-NYC

In 2016, Newtown Creek Alliance, in collaboration with LaGuardia Community College and Terrain-NYC, completed a vision for restoration and access along North Henry Street. The report offered a redesigned shoreline to create intertidal habitat, salt marsh grasses at the head-end, restricted public access and formal use of an upland portion for use by neighboring Allocco Recycling. With funding from the Greenpoint Community Environmental Fund, both parties continue to pursue the vision, including a recently completed Phase 2 environmental assessment of the City-owned property between the street and inlet.

12 Marine Transfer Station Redesign



Replacement of the currently defunct and aging over-water facility with a research station supporting the revitalization of Newtown Creek and its ecosystem. A boat launch and small docking area would serve the needs of the agencies and non-profit organizations that play a critical role in protecting Newtown Creek and surrounding waterways. Portions of the current piling infrastructure would be left in place to help protect the new facility and increase access to the Public Basin area.

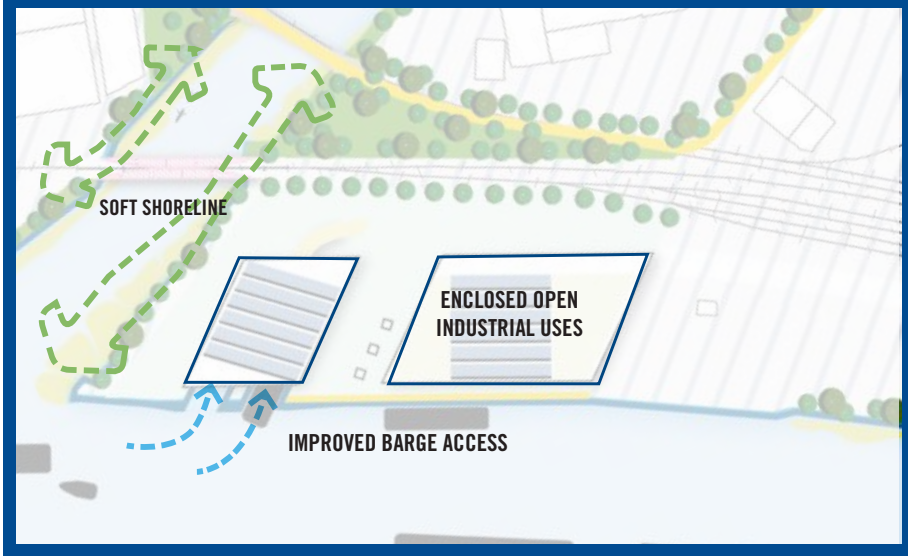
13 Critical Path Project / Better Barge Traffic Flow for Industrial Uses

SIMS Municipal Recycling Center, Red Hook

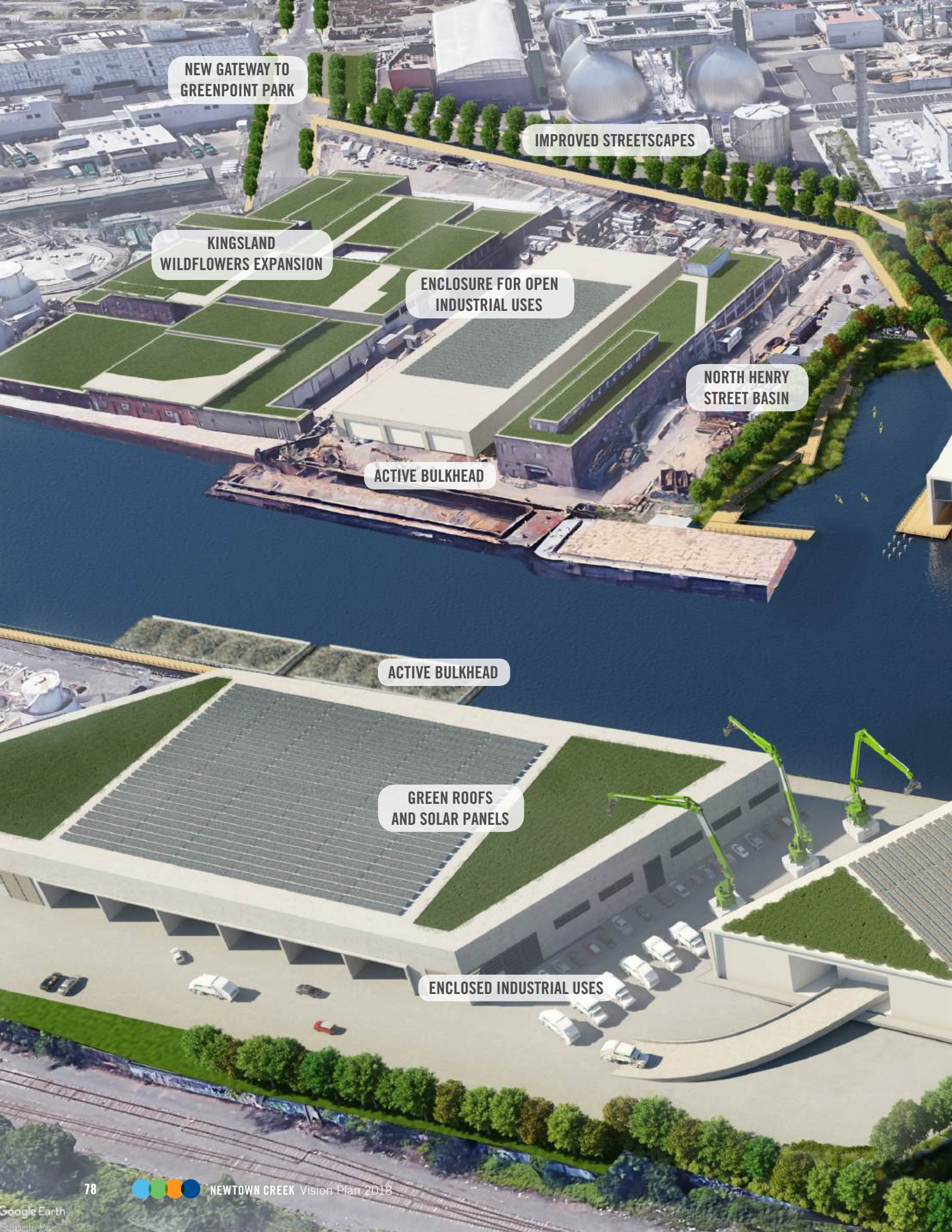
Creating new slips built into properties, upland of the present water's edge, would increase open water space adjacent to the facility and improve navigability on Newtown Creek, especially when tugs are retrieving and unloading barges.

Seattle South Transfer Station building art

Historic aerial of site cut out



Facilities along this reach are the most active barging operations on Newtown Creek, with multiple barges of metals and curbside recycling waste shipped out every day. Currently uncovered piles of industrial materials (including soils, waste, metals) are loaded onto barges with cranes, which may not be the most efficient method for smaller and lighter items like plastic pieces, bags, or small metal fragments. A new marine transfer station where municipal trucks carrying single stream recycling (papers, plastics, metals combined) empty directly onto barges in an enclosed facility would greatly streamline the process and prevent marine debris. Creating new slips built into properties, upland of the present water's edge, would increase open water space adjacent to the facility and improve navigability on Newtown Creek, especially when tugs are retrieving and unloading barges. With upland contamination issues throughout the area, the removal of sediments to create the barge slips benefits the long-term remediation goals of the Creek.


NEW GATEWAY TO GREENPOINT PARK
IMPROVED STREETSCAPES
KINGSLAND WILDFLOWERS EXPANSION
ENCLOSURE FOR OPEN INDUSTRIAL USES
NORTH HENRY STREET BASIN
ACTIVE BULKHEAD
ACTIVE BULKHEAD
GREEN ROOFS AND SOLAR PANELS
ENCLOSED INDUSTRIAL USES
Google Earth

PHASES 2 AND 3 OF NATURE WALK

CLEAN SOIL AND COMPOST COMMUNITY CENTER

ACTIVE BULKHEAD

PUBLIC BOAT LAUNCH

PUBLIC OVERLOOK

NEWTOWN CREEK RESEARCH CENTER

NATURE WALK

BETTER BARGE TRAFFIC FLOW

SOFT SHORELINE

11 Marine Transfer Station Redesign

A new research center connected to open spaces, industry and community facilities at the epicenter of the Creek.

Today the decommissioned marine transfer station sits at a convergence point in the Creek where industry, public space and natural habitat come together in a disjointed and unplanned way.

03. DUTCH KILLS

Establishing a protected environmental and recreational oasis.

The western, narrowest, and likely most stagnant tributary of Newtown Creek, Dutch Kills cuts almost due north from the Newtown Creek Wastewater Treatment Plant into Long Island City and Sunnyside, Queens. Intimately nestled among tens of thousands of students at LaGuardia Community College, dozens of new residential towers, and rapidly growing commercial and industrial corridors, this tributary has too long been kept apart from the community around it.

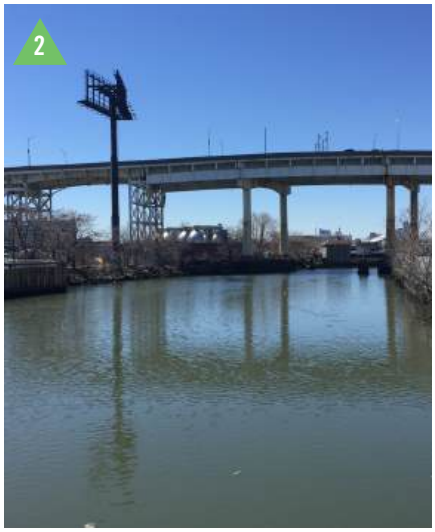
Every year, millions of gallons of combined sewer pollution pour into Dutch Kills. Two abandoned deteriorating barges lie unattended, rotting and rusting at the head-end of the tributary. Legacy contamination, like the rest of the Creek, is found throughout the surface and subsurface sediments of the tributary. Low bridges and decades of sediment build-up have rendered the waterway inaccessible by even the smallest boats. Crumbing bulkheads, neglected streetscapes, and overgrown edges prevent people from seeing the water, let alone enjoying it. Dutch Kills, in short, is neglected; it is not, however, abandoned.

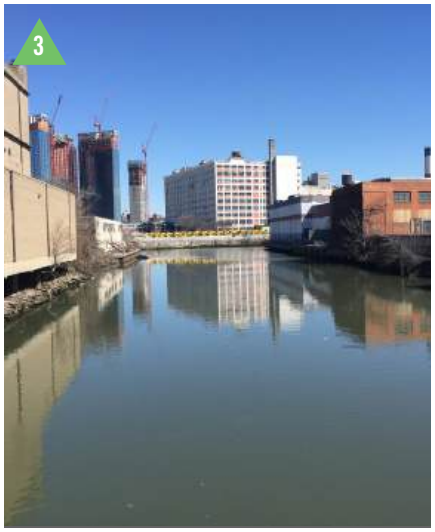
Take a closer look, maybe by canoe, to reveal a portion of the Creek that is stewarded and cared for by members of the community, incubated by the City for restoration pilot projects, and explored by local professors and their classes as a case study in urban aquatic ecology. Despite the contamination and the inaccessibility, the neighborhood has been slowly redefining and reopening the waterway.

As the Superfund process continues, combined sewer discharges are captured, and stormwater pollution is curbed, Dutch Kills can be further transformed into a thriving space for environmental education, recreation, and restoration.

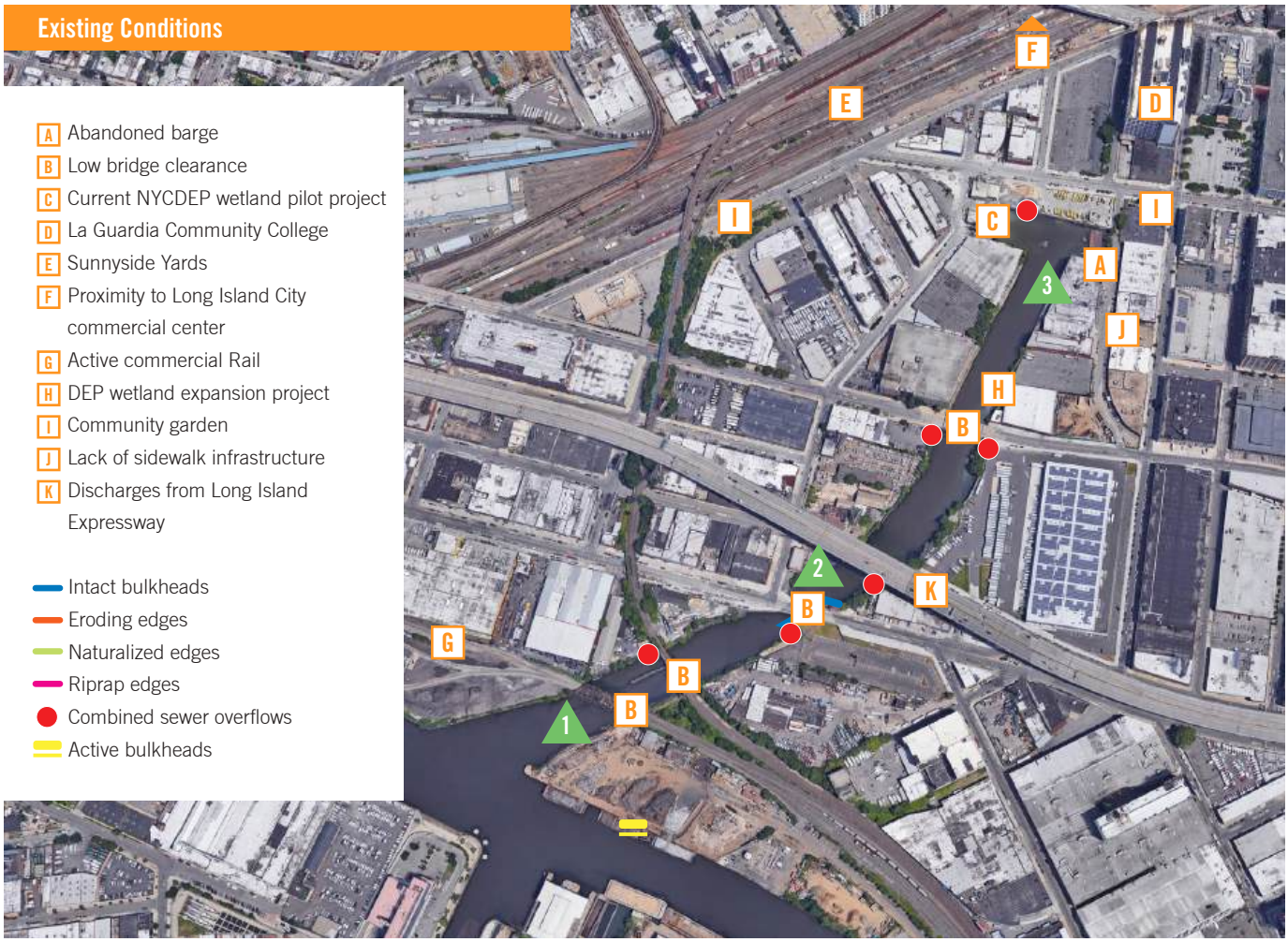
Central to this vision is the opportunity to connect one of the fastest-growing communities in the City to a non-navigable, restored wetland waterfront park.

As towers, schools and high tech industries spring up all around it, the Dutch Kills tributary is rich with innovative educational and recreational opportunities.





Existing Conditions



REMEDIATION

Legacy contamination, regular combined sewer overflow events, oil and hazardous material discharges from bridges spanning the tributary, and poor tidal flow create serious remediation needs. Curbing combined sewer overflow events and using the Superfund process to ensure complete remediation of any remaining chemicals will, together, ensure that any clean-up solutions are permanent.

RECREATION

Remediation and restoration investments in the tributary are vital for recreational use, as are new water access points, new public park spaces, and shoreline trails. These efforts would open up much-needed outdoor space for thousands of students, area workers and residents, including the already-robust recreational boating community along the main stem of the Creek.

RESTORATION

Several restoration pilot projects are already in progress in Dutch Kills, testing the survivability of a number of marsh grass ecosystems in this harsh environment. In-water industrial impacts (such as airborne pollution: dust and debris) and stormwater discharges present ongoing barriers to larger-scale restoration.

RESILIENCE

Waterfront properties are well-suited for mitigating climate change impacts and helping with the resilience of the ecosystem in the tributary. With shorelines that cannot be accessed by barges or boats for waterborne commerce, the waterfront can be used for stormwater management, sponge parks and other green infrastructure, and as softened, wetland-supporting edges.

REMEDIATION
RESTORATION
RECREATION
RESILIENCE

Light Improvement Projects

1. Removal of Abandoned Barges

Unclaimed sunken barges impede public access, cleanup efforts and pose a structural threat to adjacent properties. Removing these abandoned hulks opens up the shoreline for restoration opportunities and public access improvement.

2. Ranch on Rails

Heavy Improvement Projects

3. Reuse of Borden Avenue Bridge House

A community asset that has not been maintained over time, restoration of the historic bridge house highlights Dutch Kills and Newtown Creek maritime history.

4. Shoreline Wetland Restoration

Expanded investments in salt marsh re-introduction within Dutch Kills, including strategic rebuilding of eroding shorelines to stabilize upland properties, is a capstone restoration effort for the Creek.

5. Improved Bridge Designs

Current bridge designs and abutments, especially Borden Avenue, narrows the channel and restricts the flow of water. Redesigning bridges with longer spans improves water flow, and thereby water quality throughout Dutch Kills.

6. Green Parking Garage for LaGuardia Community College

By rebuilding the current two-acre parking lot at LaGuardia Community College as a tiered multi-story garage, much of the parcel can be used as public open space, for green infrastructure, or as a site for expanded large-scale stormwater control investments.

7. Bernie's Walk

8. 29th Street Park

Aspirational Improvement Projects

9. Montauk Cutoff Extension

10. Dutch Kills Loop


Jackson Ave
Thomson Ave
47th Ave
Skillman Ave
49th Ave
Borden Ave
Long Island Expressway
EXISTING BUILDINGS
NOTABLE/PROPOSED BUILDINGS
EXISTING OPEN SPACES
PROPOSED OPEN SPACES
FLOATING WETLANDS
GREEN ROOF
SOLAR PANELS
PARKING
EIS-REFERENCED DEVELOPMENT
MAJOR CORRIDORS
PROPOSED PEDESTRIAN WALKWAYS/DOCKS
BROOKLYN BIKE GREENWAY
2020 100-YEAR NYC FLOOD RISK, ACCOUNTING FOR SEA-LEVEL RISE

Priority Projects

7 Bernie's Walk

Bernie's walk existing conditions

Local workers, students and nearby residents would be afforded a stronger connection to Dutch Kills with a shoreline walkway extending south from the top of 29th Street toward Borden Avenue. Following Dutch Kills' eastern bank, the path would cross behind three properties between 29th Street and Hunter's Point Avenue. From there, the path would run behind an existing shipping company distribution facility where an existing shoreline walkway has been developed (and separated from truck operations by fences). The path is named after the late Newtown Creek Alliance historian Bernie Ente, an avid photographer and champion for Newtown Creek.

8 29th Street Park

The creation of a public park at the head-end of Dutch Kills provides direct public access to the water and much needed green space in a thriving and growing section of Long Island City. Based on a 2010 proposal approved by the City Parks Foundation, this park utilizes portions of MTA-owned property and adjacent facilities, and would include significant redesign and restructuring of the shoreline to provide ecosystem and resilience benefits. A redesigned 29th Street includes sidewalks and pedestrian safety improvements, achieved in part by making traffic on the stretch one-way, northbound.

9 Montauk Cutoff Extension

Montauck Cutoff concept, Ranch on Rails, Interval Projects

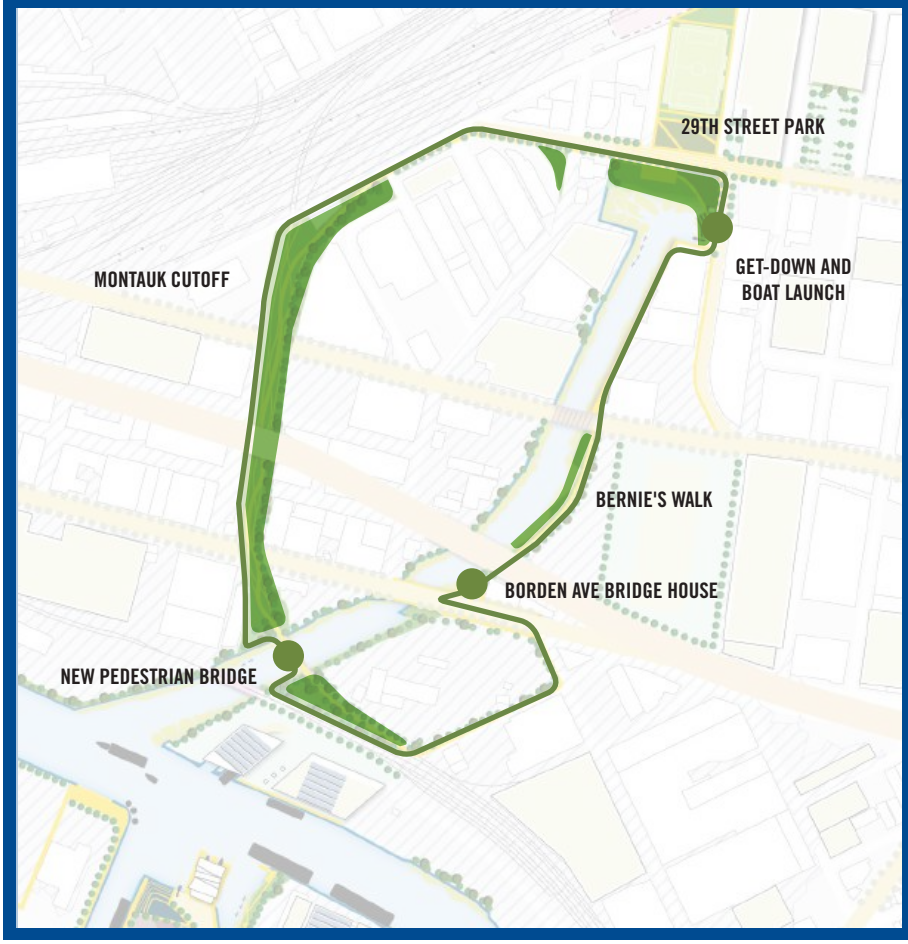
Expand public access along the decommissioned Montauk Cutoff rail line by continuing accessible portions of the elevated path across Dutch Kills. This new pedestrian Walkway would connect with other access projects along the 29th Street Corridor With a Congressional de-designation of navigability in Dutch Kills, the old and defunct bridge would be redesigned as a new, lower-to-the-water fixed pedestrian bridge. Soils underneath and surrounding the tracks would be fully remediated and replanted with native vegetation connected to plantings along the shoreline. Green spaces along this extension double as green infrastructure features, providing stormwater control benefits to Dutch Kills.

10 Critical Path Project / Dutch Kills Loop

Pedestrian Bridge, Toronto

Montauck Cutoff concept, Ranch on Rails

Along with five private landowners, coordination among agencies is vital, as the Loop includes environmental protection, transportation, public safety, and new construction components, across, over and below existing city, state, and federal facilities.



All of the proposed improvements for Dutch Kills fit together as part of a continuous loop that features environmental restoration, remediation and a dramatic increase in the amount of public access provided. Connecting Ranch on Rails and the Montauck Cutoff Extension with Bernie's Walk and the 29th Street Park creates a 1.4-mile path with five street crossings. The street portions of the Loop include stronger landscaping and green infrastructure components, as well as new public signage and wayfinding to direct people to different sections of the Loop. Along with five private landowners, coordination among agencies is vital, as the Loop includes environmental protection, transportation, public safety, and new construction components, across, over and below existing city, state, and federal facilities. In an area void of large public parks, the Loop provides significant benefit – physically connecting workers, students, and nearby residents with new open spaces and their local waters.

10 Dutch Kills Loop

A new 1.4 mile loop of public walkways, bridges and park spaces enlivens and connects a restored Dutch Kills.

Today the various segments of the Dutch Kills Loop are disjointed, in a range of habitable states and do not provide continuous access to enjoy the diversity of the Dutch Kills reach.

PARKING LOT GREEN INFRASTRUCTURE

BERNIE'S WALK

NEW HUNTERS POINT AVENUE BRIDGE

DUTCH KILLS LOOP

GREEN ROOFS

BOAT LAUNCH

29TH STREET PARK

WETLAND REINTRODUCTION

STORMWATER LANDSCAPE

PEDESTRIAN SAFETY IMPROVEMENTS

PARKING GARAGE WITH ROOFTOP RECREATION

INTEGRATED CSO STORAGE TANK

IMPROVED STREETSCAPE AND TREE PLANTING


NEW RAILWAY BRIDGE
BORDEN AVENUE BRIDGE HOUSE RENOVATION
NEW BORDEN AVENUE BRIDGE
NEW PEDESTRIAN BRIDGE
GREEN INFRASTRUCTURE UNDER BRIDGES
MONTAUK CUTOFF, RANCH ON RAILS

04. MILE TWO

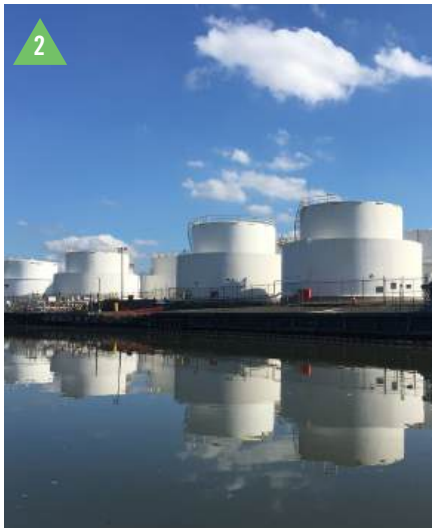
Providing a network of open spaces while enhancing responsible industrial operations

Midway into the Creek, the Mile Two reach (from Greenpoint Avenue to the Kosciuszko Bridge) is a long channel with major contamination sites on both shores. This includes the infamous Greenpoint Oil, a massive seventeen to thirty million gallon plume of oil mixed with groundwater below the neighborhood; the Meeker Avenue Plumes, additional underground contamination from dry cleaning and degreasing chemicals; and the Blissville Oil Seep a separate underground plume actively leaking into the Creek on the Queens shore. Trucks and construction vehicles thoroughly utilize surrounding streets. Shorelines in this stretch of the Creek are extensively deteriorated, crumbling into the Creek and providing little storm surge protection for the upland industries.

With the Kosciuszko Bridge completed in the coming years, a new waterfront parks will soon open underneath the new overpasses on the Brooklyn side and one upland in Queens. These parks will provide much-needed open space and water access. Local street-ends are being transformed by local advocates from abandoned areas of crumbled concrete into cleaner and greener areas, setting the tone for the kind of revitalization the community would like to see. Revitalization that is inclusive and resilient.

Because this reach is industry heavy, industrial buildings should play a large role in building climate resilience and ecological restoration. Green infrastructure, particularly green roofs and adapted bulkheads offer adaptive opportunities. Though space in this reach is limited, community members' visions for the reach take full advantage of the Kosciuszko Bridge Parks and street-end parks for critical open space, green infrastructure, and water access.

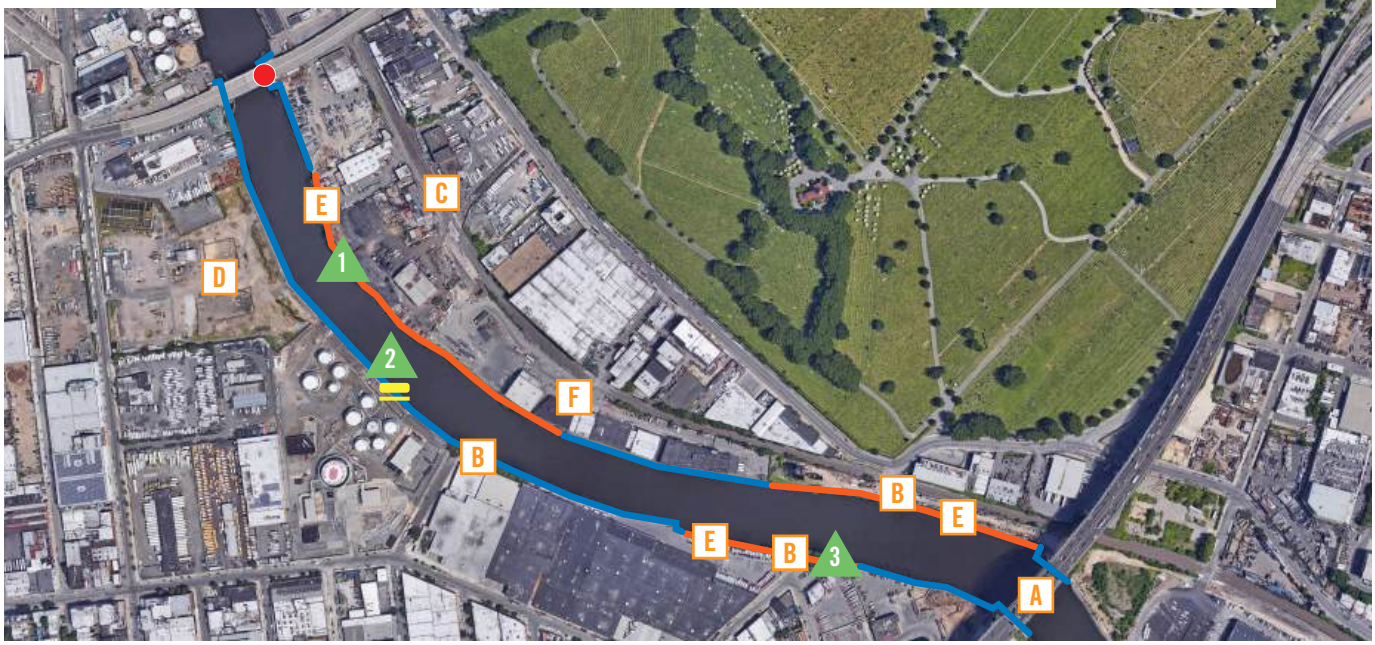
Located between bridges, and surrounded by underground pollutants; shorelines on the main stem of the Creek offer street-ends and bulkheads with potential for redesign.



Existing Conditions

- A New Kosciuszko Bridge
- B Neglected existing street end access
- C Active rail line
- D ExxonMobil Oil Spill remediation
- E Deteriorated shoreline
- F Blissville Seep

- Intact bulkheads
- Eroding edges
- Naturalized edges
- Riprap edges
- Combined sewer overflows
- Active bulkhead



REMEDIATION

With at least one active oil seep directly discharging into the Creek and significant impacts from the historic ExxonMobil oil spill (and its ongoing remediation), this reach is perhaps one of the stretches of Newtown Creek most in need of remedial attention – upland, along the shoreline, and in the waterway and its sediment bed. The Superfund process here must include clean-up orders for upland parcels to ensure this entire stretch is free from the threat of toxic recontamination.

RESTORATION

Once remediated, clean water and oil-free bulkheads will open up aquatic conditions for restoration efforts. Rebuilding deteriorating bulkheads with three-dimensionality, over-water decks, and riprap offers new opportunity for ecosystem habitat without further channelizing the Creek. Adaptive strategies like oyster cages, floating wetland boxes, and terraced edges further foster a resilient urban ecosystem.

RECREATION

Building on restoration efforts, investments should be made to activate recreational opportunities within this reach; specifically, at the planned Kosciuszko Bridge parks and at the street-ends that pepper the corridor. Creating pedestrian, transit, and bike pathways that connect these assets to the broader community is vital to the long-term stewardship of the reach. There is great opportunity for local businesses to participate in the long-term stewardship of the new public access areas.

RESILIENCE

With very little space within the Creek to add marshes large enough to buffer storm surges, upland and waterfront resilience investments are vital. Upland industrial sites represent crucial spaces for berms, flood management measures, and new green infrastructure assets; green roofs, edge enhancements, and other industrial resilience best management practices should be deployed throughout the reach's watershed to best protect the industry and the community.

REMEDIATION RESTORATION RECREATION RESILIENCE

Light Improvement Projects

1. Kosciuszko Bridge Waterfront Park

   The NYSDOT commitment to building a multi-acre public park under the Brooklyn side of the bridge is a tremendous opportunity to create community amenities and access, serving the community for decades to come.

2. Oyster Gardens

   Many of the bulkheads along this reach could easily host suspended oyster cages, centered and supported by Newtown Creek oyster farming facilities, and maintained by local businesses and volunteers.

3. Gardner Avenue Improvements

   By resurfacing and redesigning the streetscape of this industrial corridor, heavy truck traffic safely coexists with growing bike and pedestrian activity. Reconstruction provides an opportunity for stormwater control infrastructure investments.

4. Review Avenue Bike Path

   A widened sidewalk along Calvary Cemetery is landscaped to allow for a safe and continuous bicycle and pedestrian path connecting the new Greenpoint Avenue Gateway to Kosciuszko Bridge Parks.

5. Penny Bridge Park

Heavy Improvement Projects

6. Living Bulkheads

   Much of this reach – particularly on the Queens shoreline – consists of sheetpile bulkheads that generate no co-benefits for the Creek or the larger community. Redesigning living bulkheads to protect on-land operations and protect aquatic habitat is vital.

7. Remediated Blissville Seep

   An active oil spill, this site requires significant remediation, a rebuilt shoreline, and improved upland recovery systems to eliminate this toxic and dangerous open source of crude oil discharging into Newtown Creek.

8. Apollo Street Sponge Park

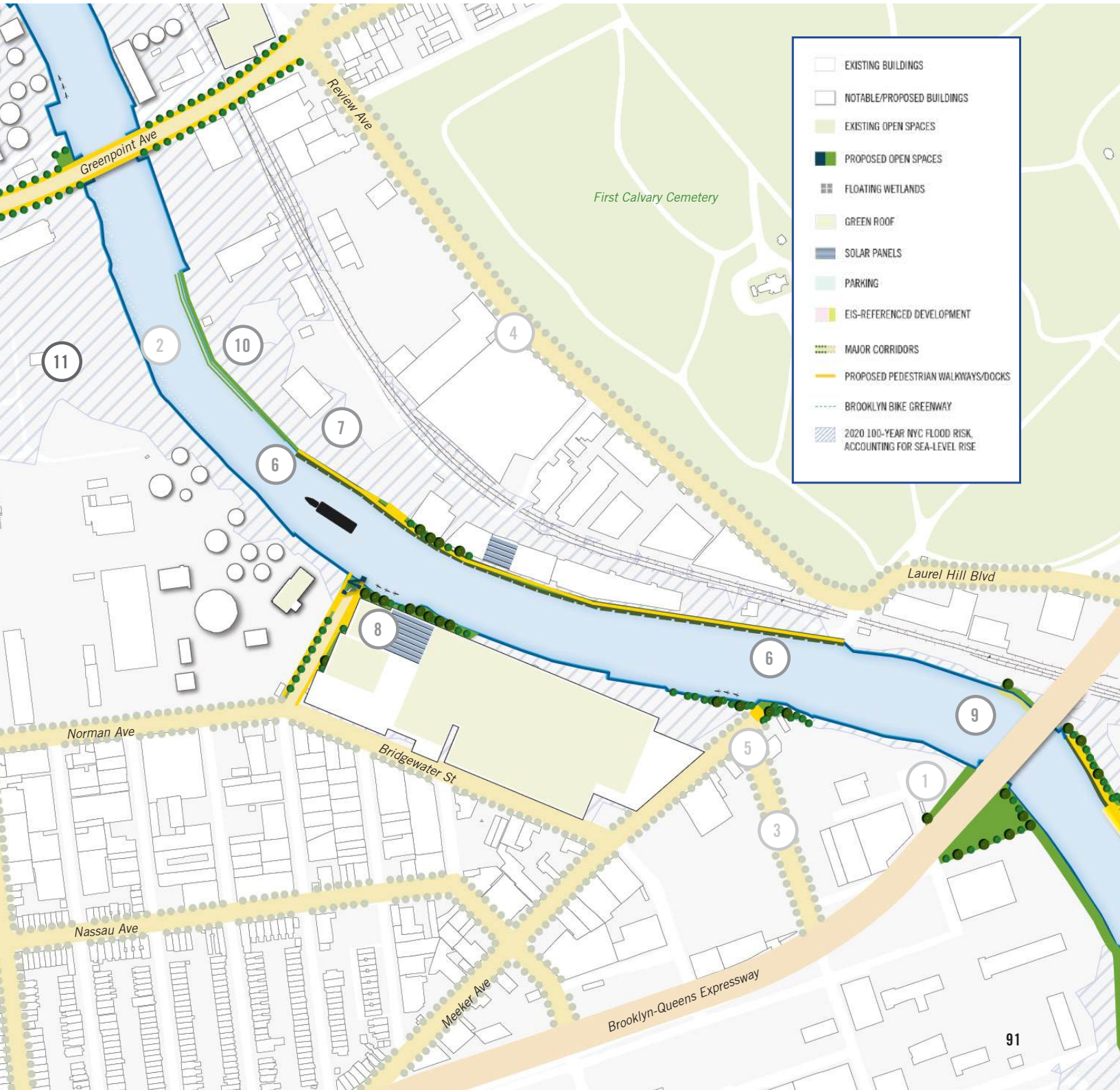
9. Shoreline Stabilization and Restoration

10. Redesign of Green Asphalt Edge

Aspirational Improvement Projects

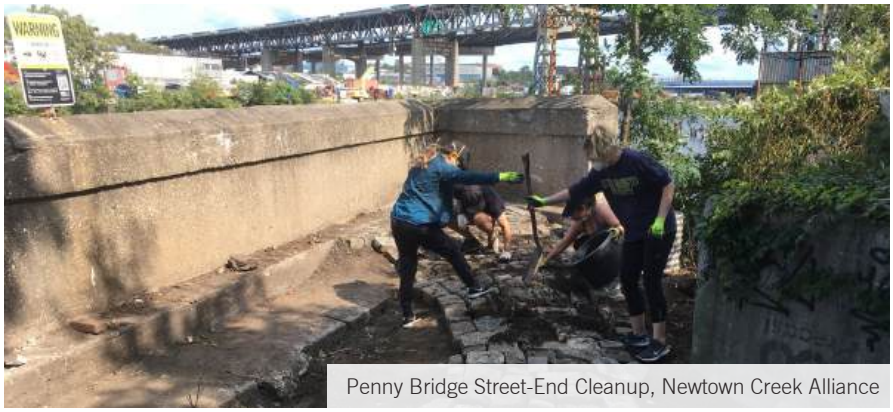
11. 400 Kingsland Avenue

The inevitable redevelopment of this 10-acre property, which currently serves as remediation headquarters for the Greenpoint Oil Spill should include a sustainably designed facility that creates economic and environmental benefits – complete with green infrastructure and community facilities.



Priority Projects

5 Penny Bridge Park



Penny Bridge Street-End Cleanup, Newtown Creek Alliance

This former bridge crossing has been left abandoned for many decades but offers a unique elevated overlook of Newtown Creek. Building on recent efforts by NCA to clean-up and reclaim this street-end, a number of elements of the publicly owned site should be redesigned to improve environmental benefit, accessibility and respite for workers in this heavy industrialized area. This includes improved capture and treatment of stormwater runoff from surrounding streets, further landscaping with trees and native plants as well as a redesign of the ExxonMobil groundwater recovery shed to increase sightlines and open up space.

8 Apollo Street Sponge Park

Gowanus Canal Sponge Park, DLANDstudio

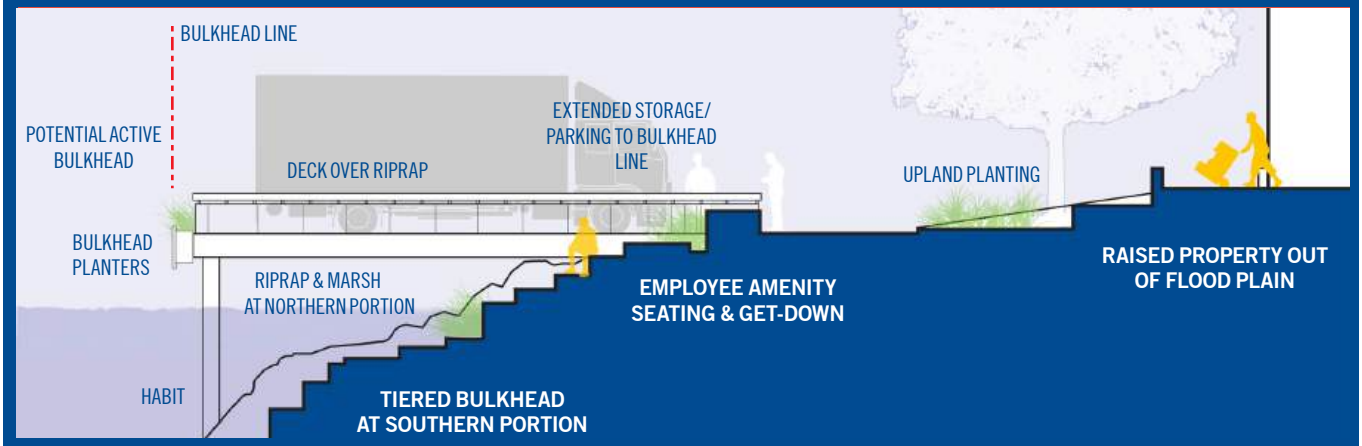
A large-scale redesign of the Apollp Stree street-end improves public access, manages stormwater, and creates a pocket of open green space to serve nearby residents and local workers. A sponge park, similar to what exists at Gowanus Canal, would help capture litter and treat runoff from the entire block. The redesign would require shoreline reconstruction to replace the current slope and get-down with a decked walkway looking out over the Creek.

9 MTA Shoreline Stabilization and Restoration

Barangaroo Reserve, Sydney, Australia, PWP Landscape Architecture

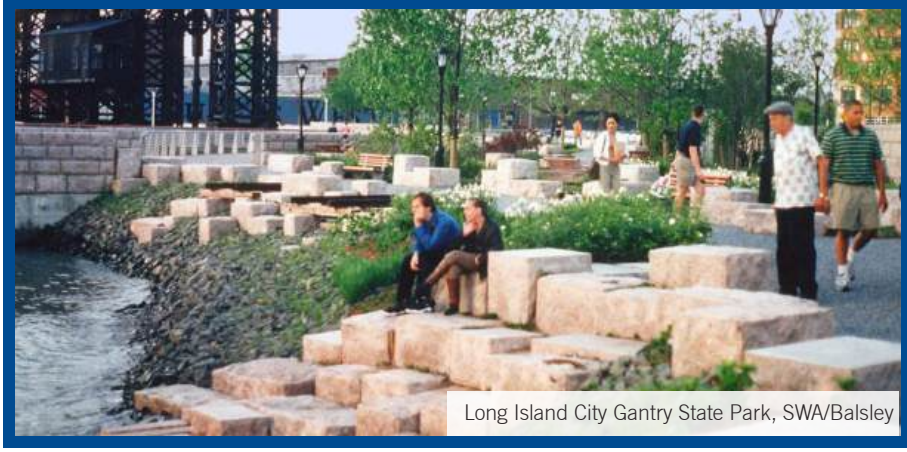
This 650-foot section of Queens shoreline running from the former Penny Bridge crossing at Laurel Hill Blvd to the Kosciuszko Bridge is dangerously steep and quickly eroding into Newtown Creek. The MTA-owned parcel should be redesigned with a terraced edge that would stabilize upland operations and use while also including restoration elements such as salt marsh planting in the existing intertidal area. The calm waters and southern exposure would afford conditions to support a thriving marsh.

10 Critical Path Project / Redesign of Green Asphalt Edge



In an effort to protect industrial operations, allow for any possible future maritime use and create environmental benefit, the edge at Green Asphalt should be redesigned and rebuilt.

Existing Green Asphalt shoreline



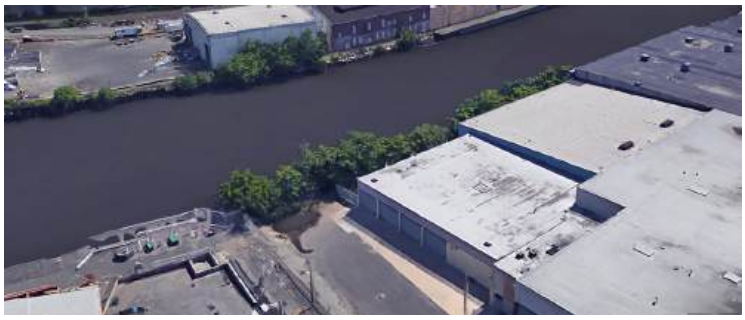
Long Island City Gantry State Park, SWA/Balsley

Currently the shoreline along the Green Asphalt and Five Star Electric facilities is an overgrown and crumbling mess of timber, concrete and rubble. In total the area measures 840 linear feet and supports heavy upland uses like materials storage and asphalt recycling. In an effort to protect industrial operations, allow for any possible future maritime use and create environmental benefit, the edge should be redesigned and rebuilt. The northern portion could be decked over to the bulkhead line, allowing for increased storage and operational area or the possibility of barge tie-up. The decking would be supported with sufficient columns while allowing for crucial intertidal area beneath. The southern portion could feature a tiered bulkhead creating a private get-down to the water and habitat for various marine animals and plants.


CREEK-WIDE ART OPPORTUNITIES
IMPROVED SHORELINE LANDSCAPE
HANGING OYSTER AND MUSSEL CAGES
GREEN BULKHEAD RETROFITS
PUBLIC OVERLOOKS
SPONGE PARK LANDSCAPE

8 Apollo Street Sponge Park

A multi-functional street-end, featuring a dynamic overlook platform hovering above a resilient sponge park landscape.



Today Apollo Street is lined with various industrial business, floods regularly and provides little access or visual connections to the Creek.

IMPROVED SHORELINE LANDSCAPE

SOLAR POWER GENERATION

GREEN ROOFS

ELEVATED CRITICAL BUILDING INFRASTRUCTURE

STREETSCAPE GREEN INFRASTRUCTURE

05. MASPETH CREEK & TURNING BASIN

Focusing on restoration and re-establishing as the ecological gem of the Creek.

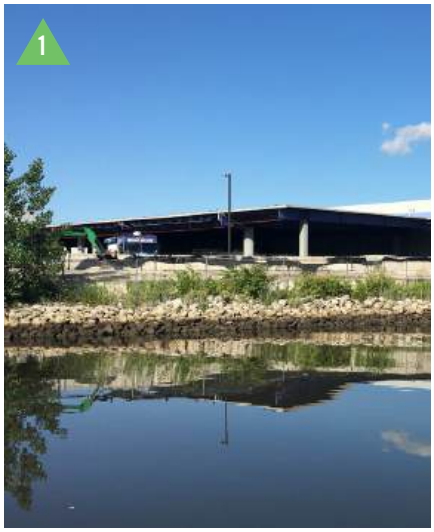
The area known as the Turning Basin, offers a very different setting than the rest of the narrow Newtown Creek. It is rare to have such a sheltered yet expansive area in New York Harbor and this reach, including the confluence with Maspeth Creek, feels more like a bay than an urban canal.

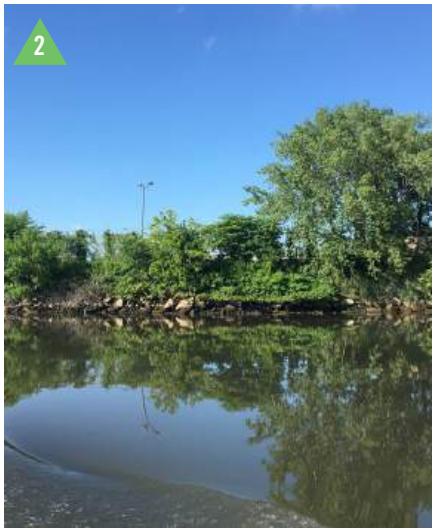
Before the Creek was industrialized, hardened and re-shaped, this area featured extensive shallow marshes, a lengthy Maspeth Creek and two separate islands. To afford large ship traffic the opportunity to turn around in Newtown Creek, Mussel Island was dredged and used as fill to connect Furman Island with modern day Queens. Today, the Turning Basin is fed by the three remaining tributaries: English Kills, East Branch, and Maspeth Creek.

Shallow, silty, and home to one of the largest combined sewer outfalls in the waterway, Maspeth Creek presents one of the best local opportunities for ecosystem restoration. Decades of sedimentation have made Maspeth Creek impassable by boats, and difficult to navigate at low tide even by canoe. With large-scale industrial operations encircling the tributary, largely parking lots abutting the waterway itself, and a trash boom stretching across the mouth of Maspeth Creek, the waterway has been kept a world apart from human use – recreational or industrial. It remains, nonetheless, coated in contamination and saturated with sewage, but the inaccessibility of Maspeth Creek and the shoreline of the Turning Basin has also provided some sanctuary for wildlife. Cormorants, herons, menhaden, and more are often observed schooling, fishing, and foraging around the trash boom and in the open waters of the basin.

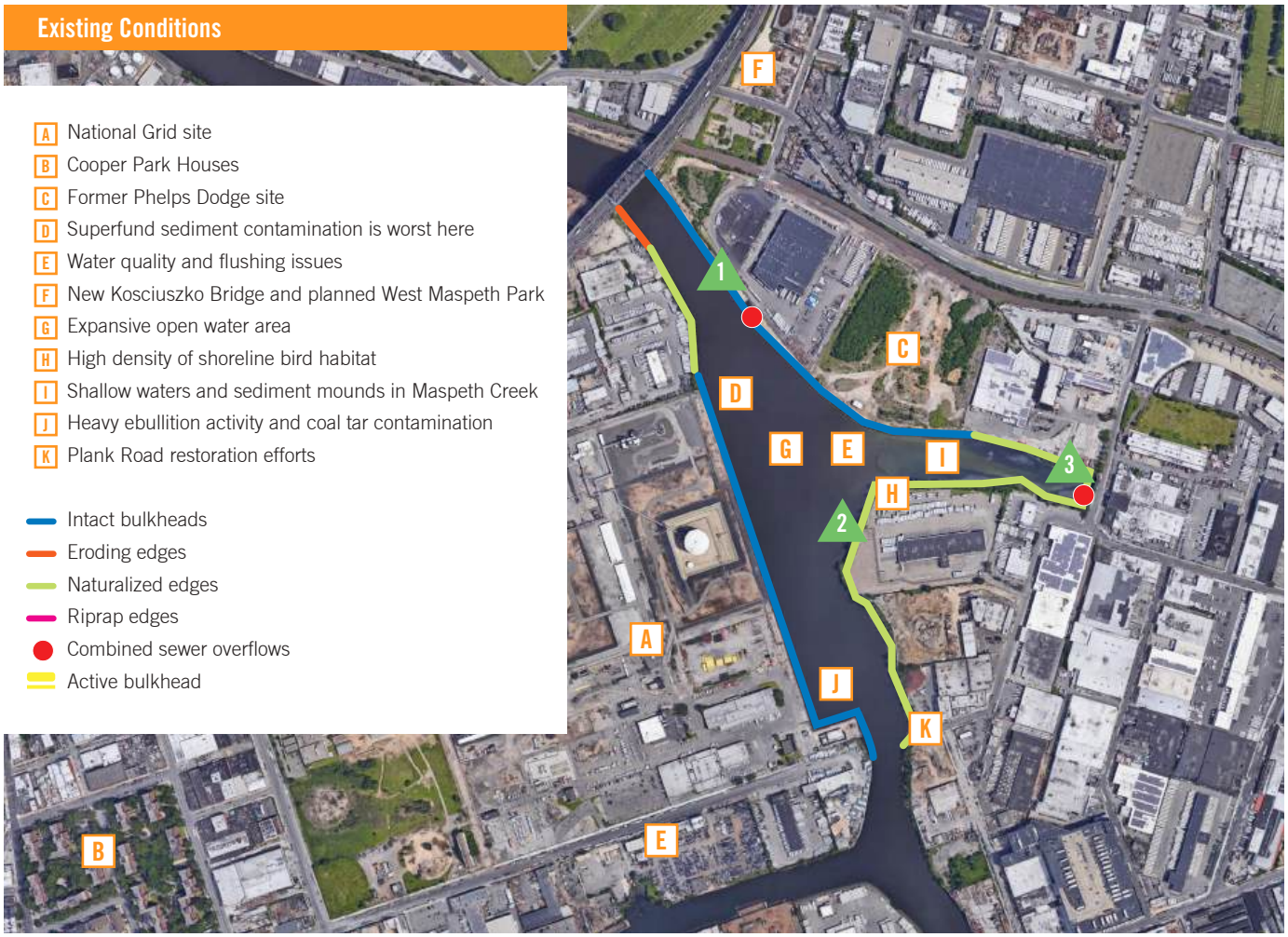
If Maspeth Creek's non navigability were made permanent, there would be ample room for wetland innovation, fishing and birding resources, and in water habitat creation. Capturing CSOs, remediating legacy contamination, and improving bulkhead and waterfront edge designs will realize the ecological potential of the open waters of the Turning Basin. Managed together as one system, restoration here would anchor the environmental revitalization of Newtown Creek as a whole, and return this natural community asset to the people, fish, and waterfowl.

The calm lake in the middle of the Creek, and former home of Furman and Mussel Islands, birds and bivalves can still be found here in abundance.





Existing Conditions



REMEDIATION

Combined sewer overflow, poor tidal mixing and large sources of historic pollution, including copper and coal tar, has left the Turning Basin as one of the most contaminated areas of the Creek. The Superfund process and the City's Long Term Control Plan offer opportunities to eliminate this contamination, a prerequisite to any future investments in improvements to this reach.

RECREATION

As with the rest of the Creek, getting people to the waterfront – and ultimately to the water – remains a top challenge. At the head-end of Maspeth Creek, public road and transit access provide a key opportunity for enhanced educational facilities. Learning kiosks and educational spaces could connect by boardwalk or waterfront esplanades along the northern bank of the Creek to parks and street-ends in Mile Two. Restored wetlands bring back opportunities for fishing, bird-watching, and boating access.

RESTORATION

The shallow waters in Maspeth Creek and around the Turning Basin offer pristine opportunities for salt marsh creation. Creation of new habitat for marine wildlife will both support Creek-Wide biodiversity and improve water quality. With ample space, an artificial island could restore the historic mussel shoal, significant portions of wetlands could be kept free from recreational access (acting as a mini-refuge), and higher-trophic-level species would have room to forage.

RESILIENCE

A vast industrial landscape site just upland to the south of the Turning Basin with entirely unrealized opportunity for green infrastructure and storm surge resilience investments. Parking lots and yet-to-be remediated brownfields surround Maspeth Creek, and the edges of most waterfront parcels are not used for water access – further room for climate adaptation innovation that allows for multiple use and ecosystem enhancement.

MASPETH CREEK & TURNING BASIN

REMEDIATION RESTORATION RECREATION RESILIENCE

Light Improvement Projects

1. Connecting Cooper Park to the Water

   Improve bike and pedestrian safety structures, invest in street tree plantings and green infrastructure, and cut back on illegal commercial parking along a mile-long stretch of Maspeth Avenue.

2. Maspeth Avenue Overlook

   Re-design public street-end to include intertidal habitat, informational signage, tree plantings and a wildlife viewing areas at this site that has 180-degree views of the Creek.

3. Floating Wetlands

   Installed along the western side of the elevated copper plant walkway, tethered wetland platforms float alongside the bulkheads, immediately increasing bioavailable salt marsh habitat.

4. 49th Street Overlook

   Improved street-level landscaping and green infrastructure at the head-end of Maspeth Creek converts this street-end into a stormwater capture facility and wildlife habitat.

5. 49th Street Public Space

   Redevelopment of a 2.7-acre parcel of city-owned undeveloped land creates new wildlife habitat and a recreational facility providing both ecosystem and community benefits.

6. Green Roof and Mural on Shipping Facility

   At a recently reconstructed Maspeth Creek-fronting freight facility, activate the massive roof and exterior wall space for environmental and aesthetic improvements.

7. Copper Plant Walkway

Heavy Improvement Projects

8. National Grid Bulkhead Redesign

   Given concerns about the migration of contaminants from land to water and a likely need to replace these bulkheads during Superfund cleanup, a redesign not only addresses pollution but incorporates intertidal habitat.

9. Round the Corner at Maspeth Avenue

   Reshaping the shoreline of this street-end peninsula opens up more room for tidal exchange and creates new shallow marsh habitat, improving water quality in the upper tributaries of the Creek.

Heavy Improvement Projects (cont'd)

10. Plank Road Expansion
11. Mussel Island
12. Maspeth Marsh: New Wetland Creation

Aspirational Improvement Projects

13. National Grid Remediation and Redevelopment

    A full remediation of the 120-acre parcel west of Varick Avenue, protects the Creek from continued groundwater contamination while providing environmentally-friendly upland habitat and stormwater control.

Priority Projects

7 Copper Plant Walkway

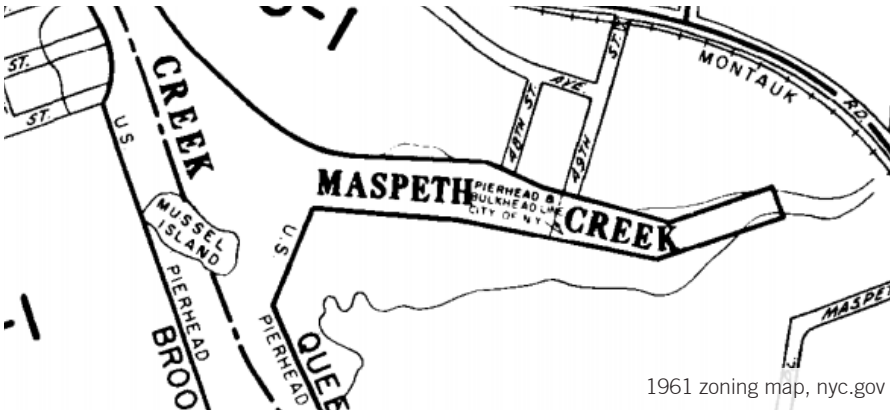
A continuous Creek-side walkway along the northern shore of the Turning Basin and Maspeth Creek would provide a needed open space in this heavy industrial area. The walkway would include a lookout near the mouth of Maspeth Creek and elevated berm along the low lying properties. The half-mile path traces the shoreline of the former Phelps Dodge Copper Refinery and could include signage telling the history of this industrially historic site. Assuming a robust Superfund cleanup, the walkway would make for an ideal fishing location for future generations.

10 Plank Road Expansion

Plank Road existing conditions

Building on small scale improvements undertaken by NCA in recent years, including debris removal; pathmaking, public signage, invasive plant management and native plantings, this access point would benefit from a larger redesign to improve stormwater management and access to DEP sewer infrastructure near the water. Additional improvements would include further restoration along the shoreline and behind the Department of Sanitation garage. Official designation as a city park or DEP managed area would ensure long-term maintenance.

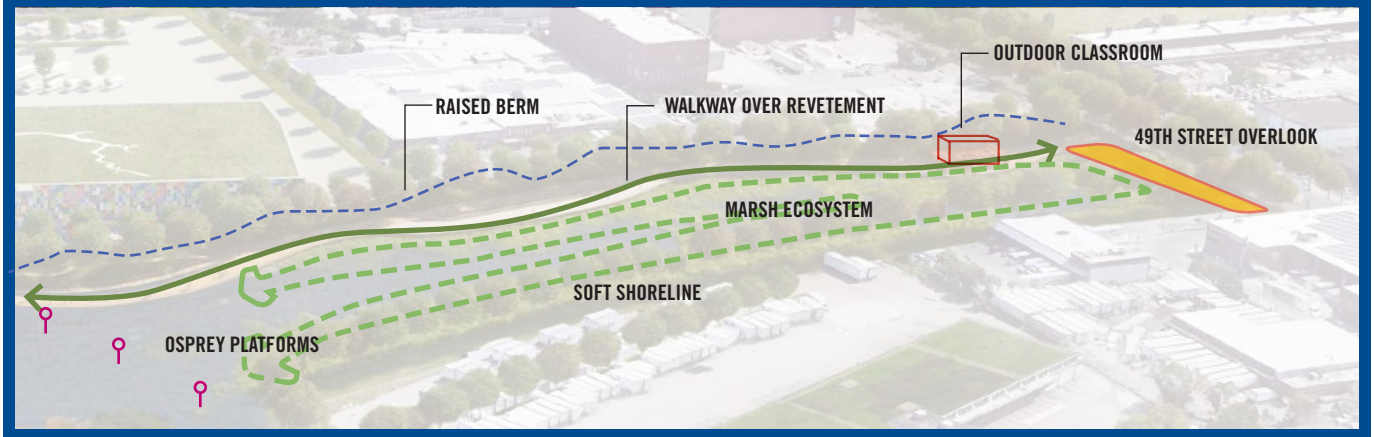
11 Mussel Island



1961 zoning map, nyc.gov

Around the year 1920 a shoal in the middle of the Turning Basin area known as Mussel Island, was dredged up and removed to improve navigation for large ships. In an effort to recreate a historic ecological feature, the island could be re-created closer to the mouth of Maspeth Creek, as to not impede the ability of barges to turn around. An intertidal mound of oysters, ribbed mussels and salt marsh would provide improvements to water quality and serve as habitat for local shorebirds.

12 Critical Path Project / Maspeth Wetland



This is one of the most practical areas of the entire Creek to de-list the formal navigability and pursue salt marsh restoration to improve water quality and wildlife habitat while also creating infrastructure to protect local businesses from flooding.

Floating wetlands, aqua biofilter

O'donohue Park, Jamaica Bay, NYC Parks

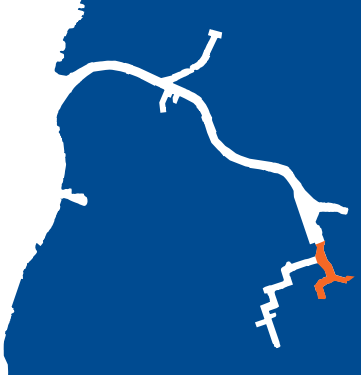
The current shallow water conditions of Maspeth Creek leave much of the creek bottom exposed during the lowest tides of the year. This is one of the most practical areas of the entire Creek to de-list the formal navigability and pursue salt marsh restoration to improve water quality and wildlife habitat as well as provide a buffer for storm surge events. The southern shore could be graded to allow for a more gentle slope down to the water providing upland, high marsh and low marsh habitats. The area on the northern side of Maspeth Creek has extremely low elevation and faces great risk from sea level rise and coastal flooding. Connecting the proposed walkway and berm along the northern shore with a gradual slope would also be beneficial in connecting wetlands to upland areas. Currently, a number of various shorebirds utilize Maspeth Creek for feeding and an increase in habitat diversity could increase this activity. Additionally, Osprey platforms could fit in well with the marshy habitat and serve a growing population in the area. By limiting public access to the northern shore, this area would serve as a wildlife priority area for the entire Newtown Creek.

7 Copper Plant Walkway

A mile-long walkway connecting new Kosciuszko bridge parks to a non-navigable Maspeth Creek

Today the former Phelps Dodge Copper smelting plant is a vacant shoreline stretch of the Creek along the Turning Basin and Maspeth Creek that is inaccessible to the community.


NEW 49TH STREET
PUBLIC SPACE
49TH STREET
OVERLOOK
OUTDOOR CLASSROOM
PUBLIC PROMENADE
PATH GET-DOWN
MARSH RESTORATION
SURFACE PARKING
GREEN INFRASTRUCTURE
MUSSEL ISLAND
GREEN SHORELINE



06. EAST BRANCH

Focusing on community connections and restoring a thriving ecosystem.

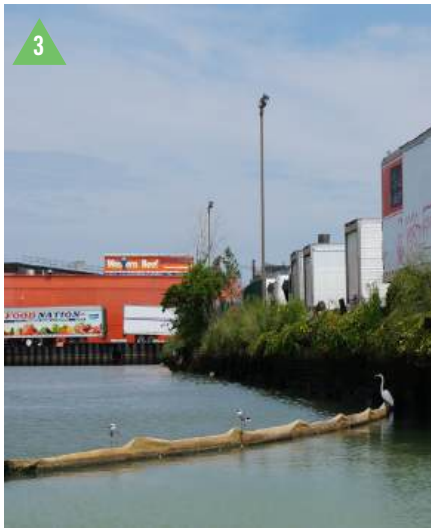
The East Branch reach is marked by warehouses and parking lots, fetid water, and scant industrial maritime traffic. Nevertheless, what one would assume is an ecologically bleak seascape, still manages to support a population of local resident birds – waterfowl that eke out a living in the foul water.

Traversing East Branch, the Grand Street Bridge connects Brooklyn and Queens. The current bridge, built in the early 20th century, is insufficient for current vehicular traffic, unsafe for pedestrians and bike users and could be part of a larger green street corridor providing access to the water and habitat for oysters and other marine wildlife. Upland, massive parking lots drain directly into the waterway, contributing to pollution and inhibiting area resilience. These lots can be transformed with green infrastructure to capture stormwater and build resilience for the industrial corridor. Neighboring DEP's aeration facility, on 47th street, is a city-owned parcel originally promised for community purposes. Community members developed ideas for recreation opportunities on the lot but plans have not been implemented.

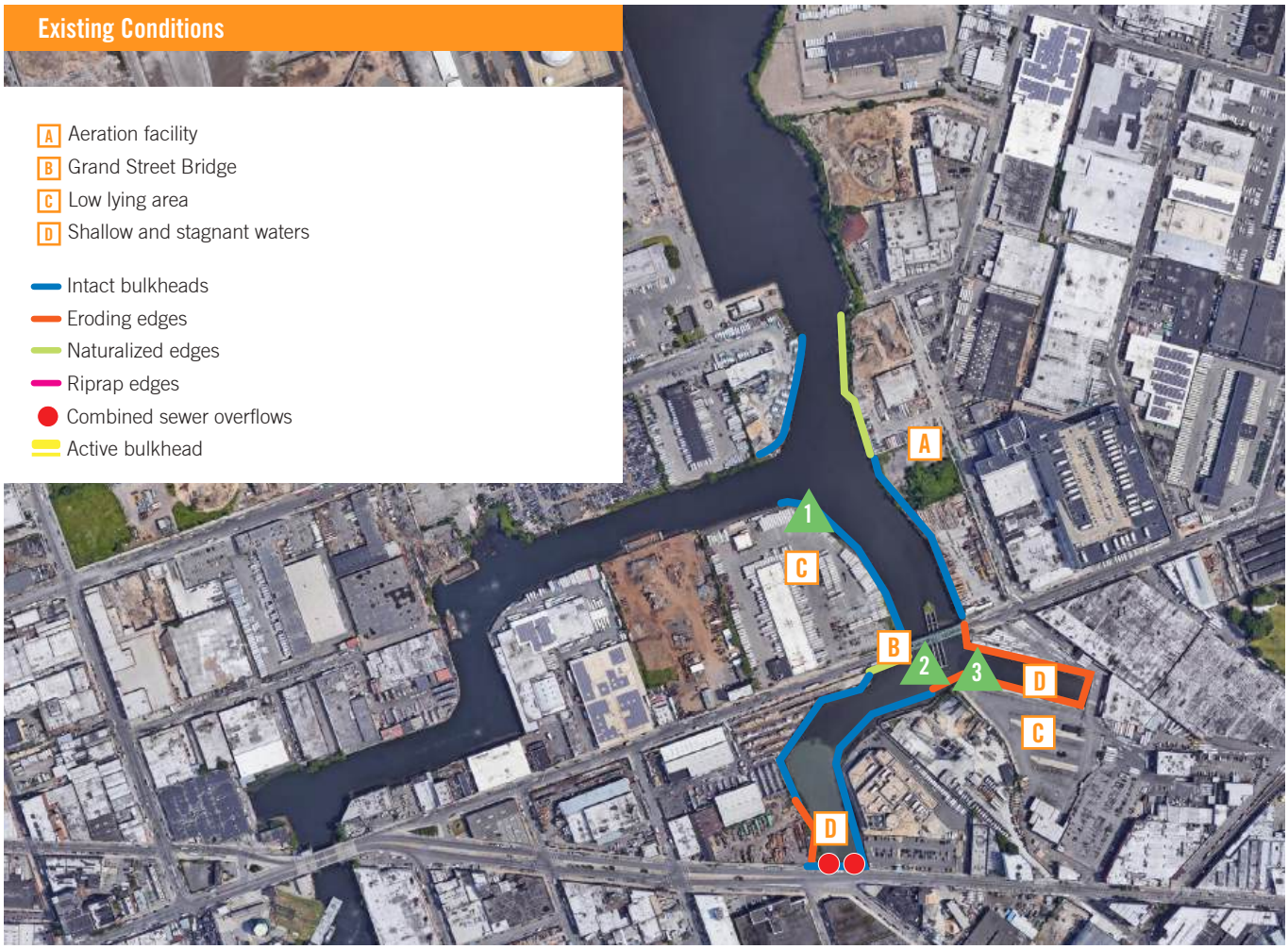
As with the rest of the Creek, the industrial legacy that channelized East Branch created hard angles and cut out streams, dramatically limiting tidal flow leading to the stagnant waters. Regular pollution discharges during combined sewer overflow events and direct discharges combined with the slack waters have led to abysmal water conditions. Despite the odds, community members at our visioning sessions saw hope for this area. The shallow waters offer up a viable opportunity for restoration with sea grasses, reintroduction of oysters, and new marine wildlife habitat. Alternating elevated and softened shorelines provide a powerful opportunity for waterfront resiliency approaches. With a little help, this inlet can become both an ecological anchor for the Creek, the pocket of marshland driving clean water throughout the system, and a model for a 21st century working waterfront community.

There are many opportunities in East Branch to better connect the boroughs, to utilize promised spaces for needed community recreation, to capitalize on a habitat for salt marsh restoration, and create protections for core industries. These bridges, lots and embayments are, after decades of decay, a perfect canvas for the reimagining of Newtown Creek.

Connecting communities and bridging boroughs, a forgotten tributary can become a treasure.



Existing Conditions



REMEDIATION

Shallow and stagnant waters, historic toxic contamination, and large combined sewer overflow discharges have turned this relatively short tributary into one of the Creek's most heavily contaminated waters. With tidal flow heavily impaired by the unnatural edges and angles of the Branch, remediation efforts depend on co-developed ecosystem restoration and tidal exchange improvements.

RESTORATION

Shallow waters and limited barge traffic offer an ideal opportunity for salt marsh restoration. Pocket marshes throughout the Branch combined with new constructed wetlands at the Western Beef Inlet provide ample habitat for fish, shellfish, and birds. Groundwater and historic stream daylighting may provide new sources of freshwater into this largely stagnant tributary, enhancing tidal exchange.

RECREATION

Waterfronts along the entire tributary have fallen into disuse, limiting public access to the waterfront and recreational use of the waterway. There is potential for rehabilitation and redesign of places like the Grand Street Bridge and the parking lots around the branch. Shoreline redesign offers opportunity for water access, pedestrian pathways, public lookouts, and restoration co-benefits like oyster habitat.

RESILIENCE

Low lying areas are particularly vulnerable to flooding throughout this reach. Building flood resilience through soft edges and marsh construction is a priority. Parking lot redesign, green infrastructure, and flood-risk mitigation measures all offer numerous resilience-building opportunities that can double as restoration and recreation improvements.

REMEDIATION RESTORATION RECREATION RESILIENCE

Light Improvement Projects

1. Border of the Boroughs

   A new green-street design brings seating and stormwater control, along with public signage about the Creek and a marker at the Brooklyn-Queens border.

2. Green Roofs on Older Industrial Buildings

   Vegetated rooftops help reduce urban heat island effect, provide habitat, lower energy needs, and capture stormwater to improve local water quality.

3. Solar Installations on Newer Industrial Buildings

   Newer buildings, which tend to have rooftops less capable of bearing large loads, house solar panels connected to micro-grids – relieving local peak energy demand.

4. Bridge Redesign: Oyster and Mussel Reefs

Heavy Improvement Projects

5. Soft Shoreline Edges

   A waterfront-facing freight facility is an ideal site for improving existing riprap shoreline as a soft edge with small berm to protect low-lying upland property from sea level rise.

6. Wetland Restoration

   Current shallow waters and lack of maritime traffic offer easy opportunity for heavy salt marsh restoration along the edges of the western inlet.

7. Bridge Reconstruction: Public Access and Ecosystem Function

8. 47th Street DEP Lot

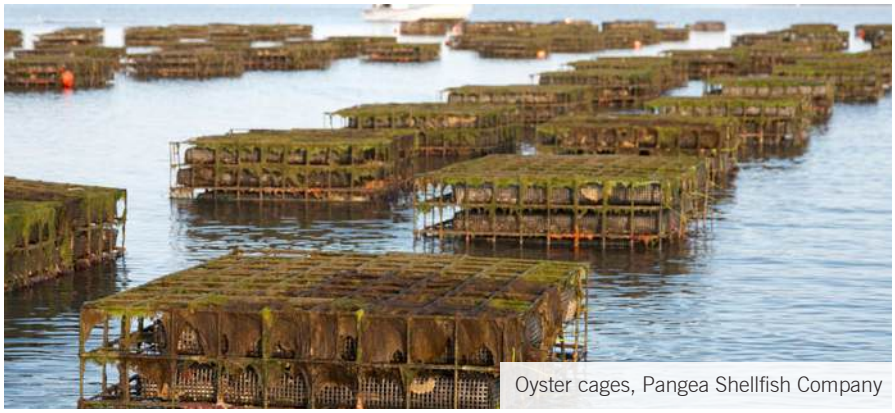
Aspirational Improvement Projects

9. Western Beef Berm


Maspeth Ave
Grand Ave
Grand St
Metropolitan Ave
1
2
3
4
5
6
7
8
9
EXISTING BUILDINGS
NOTABLE/PROPOSED BUILDINGS
EXISTING OPEN SPACES
PROPOSED OPEN SPACES
FLOATING WETLANDS
GREEN ROOF
SOLAR PANELS
PARKING
EIS-REFERENCED DEVELOPMENT
MAJOR CORRIDORS
PROPOSED PEDESTRIAN WALKWAYS/DOCKS
BROOKLYN BIKE GREENWAY
2020 100-YEAR NYC FLOOD RISK, ACCOUNTING FOR SEA-LEVEL RISE

Priority Projects

4 Bridge Redesign: Oyster and Mussel Reefs



Oyster cages, Pangea Shellfish Company

The existing piling fields and over water structure of the current swing bridge could be modified to accommodate oyster cages. While current water quality conditions in East Branch may limit oyster survival, a significant reduction of sewage overflow would improve conditions and provide an ideal low energy environment for various filter feeders, which would in turn additionally improve water quality and provide needed habitat for small fish and invertebrates.

7 Grand Street Bridge Redesign

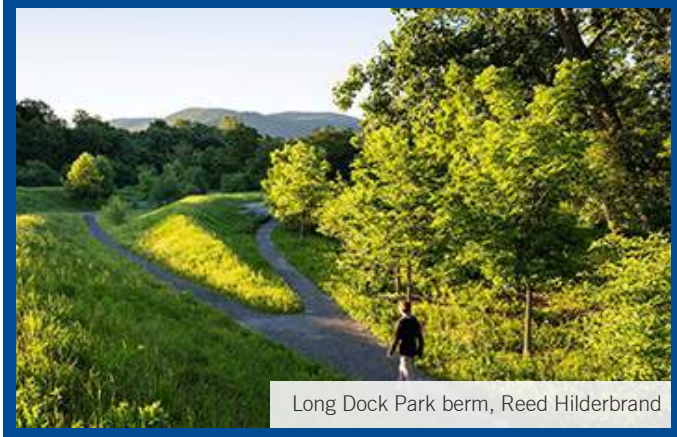
Built in 1903, this aging structure requires constant maintenance and is too narrow for two-way truck traffic despite being both a bus and truck route, increasing traffic in the surrounding areas. While the NYC DOT is considering a rebuild to address these issues, we believe a complete redesign could provide additional benefits beyond traffic flow. De-listing navigability south of the bridge would allow for construction of a non-movable bridge which could widen the channel and reduce maintenance needs and costs. Improved pedestrian and bike path as well as overlooks of the Creek could also be incorporated.

8 47th Street DEP Lot

Bushwick Inlet Park, Kiss + Cathart

This city-owned 1.6 acre parcel sits mostly vacant, housing a blower building for NYCDEP's aeration project near the water's edge. A mayoral override in 2015, citing safety concerns, withdrew an earlier stipulation from the City to build out waterfront access on the lot. Community interest in public use, recreational facilities such as soccer pitches and replanting of lost shoreline vegetation persist and would be easy to accommodate. DEP needs to go beyond verbal non-commitments and work with community stakeholders to reinstate previously planned public use.

9 Critical Path Project / Western Beef Berm



Long Dock Park berm, Reed Hilderbrand

Brooklyn Bridge Park Salt Marsh, NYC Parks

The berm would help protect some of the surrounding buildings, notably the Western Beef grocery store, which owns most of the land surrounding the inlet as well as the actual inlet itself.

The parking lots surrounding this inlet sit only a few feet above current high tide and face great risk of flooding during storm surges and with sea level rise. The inlet itself is non-navigable and offers an ideal location for wetland restoration. There is one small stormwater outfall at the head of the inlet, but no CSO outfalls. Salt marsh within the inlet could be connected to a redesigned shoreline that drops a portion of the existing southern parking lot into the Creek and gradually rises to form a berm that surrounds the inlet. The berm would feature a walkway on top, overlooking the marsh below and wrapping around to connect with the Grand Street Bridge. The berm would help protect some of the surrounding buildings, notably the Western Beef grocery store, which owns most of the land surrounding the inlet as well as the actual inlet itself. By pushing the shoreline inland on the southern side the project would reclaim a current truck parking facility for shallow water and intertidal marsh which would provide ecological benefit while also protecting upland facilities.

7 Grand Street Bridge Redesign

A new design that balances industrial traffic with integrated bike, pedestrian routes, oyster cages and public plazas.

Today this 115-year old swing bridge is inadequate for two-way traffic despite being a bus and truck route and because of its age requires constant maintenance.


NEW GREEN SHORELINE
AND PUBLIC STREET END
PARK PAVILION
NEW PARK
NEW GREEN SHORELINE
NEW BRIDGE WITH
SIDEWALKS AND BIKE LANES
OYSTER CAGES

07. ENGLISH KILLS

Focusing on restorative landscapes and green infrastructure to invite exploration.

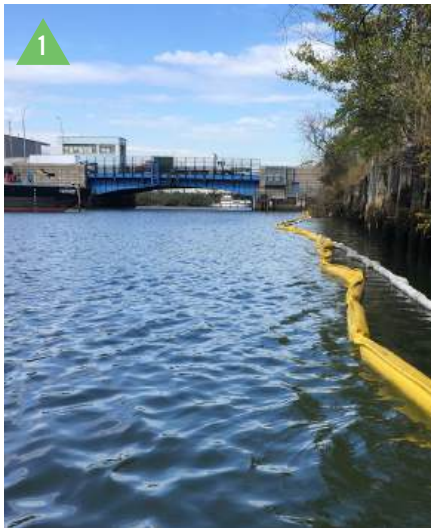
Farthest from the mouth of the Creek, English Kills runs straight to Bushwick's doorstep. This head-end of the Creek is only fed by stormwater and sewage pollution, and discharges from one of the largest combined sewer outfalls in the City.

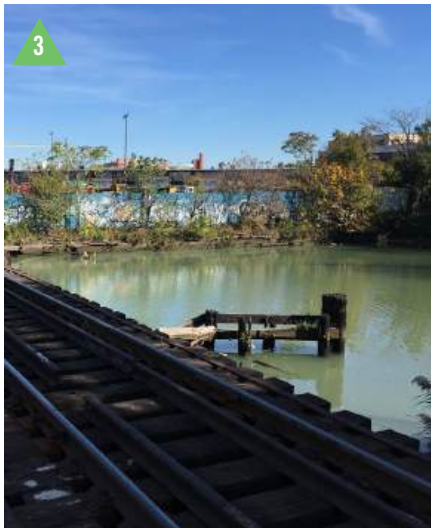
The sharpest visual feature of English Kills isn't the CSO that feeds it, but the series of man-made 90-degree hairpin turns. Right angles are not a natural phenomenon in a body of water; here, over time, the needs of area industries filled in and hardened the edges of the Creek behind squared plots of land uphill of this former marsh. These jagged turns impede tidal flow; coupled with more than a century of unabated combined sewer pollution, the very structure of English Kills is its greatest weakness. Polluted sediment, stagnant waters, and toxic contamination continue to sit in this tributary, waiting for investments in remediation – and perhaps a softening of the corners and cuts of the tributary.

Despite the bleak conditions in the water, the community around English Kills – especially at the head-end – is growing. Schools, residential neighborhoods, commercial corridors, small businesses, and start-ups comprise a creative economy and vibrant community in English Kills. These rapidly-expanding mixed uses, so far, have no way to access or explore the waterway running through their backyards – a barrier that can, and should, change given the lack of open space available in this part of Brooklyn.

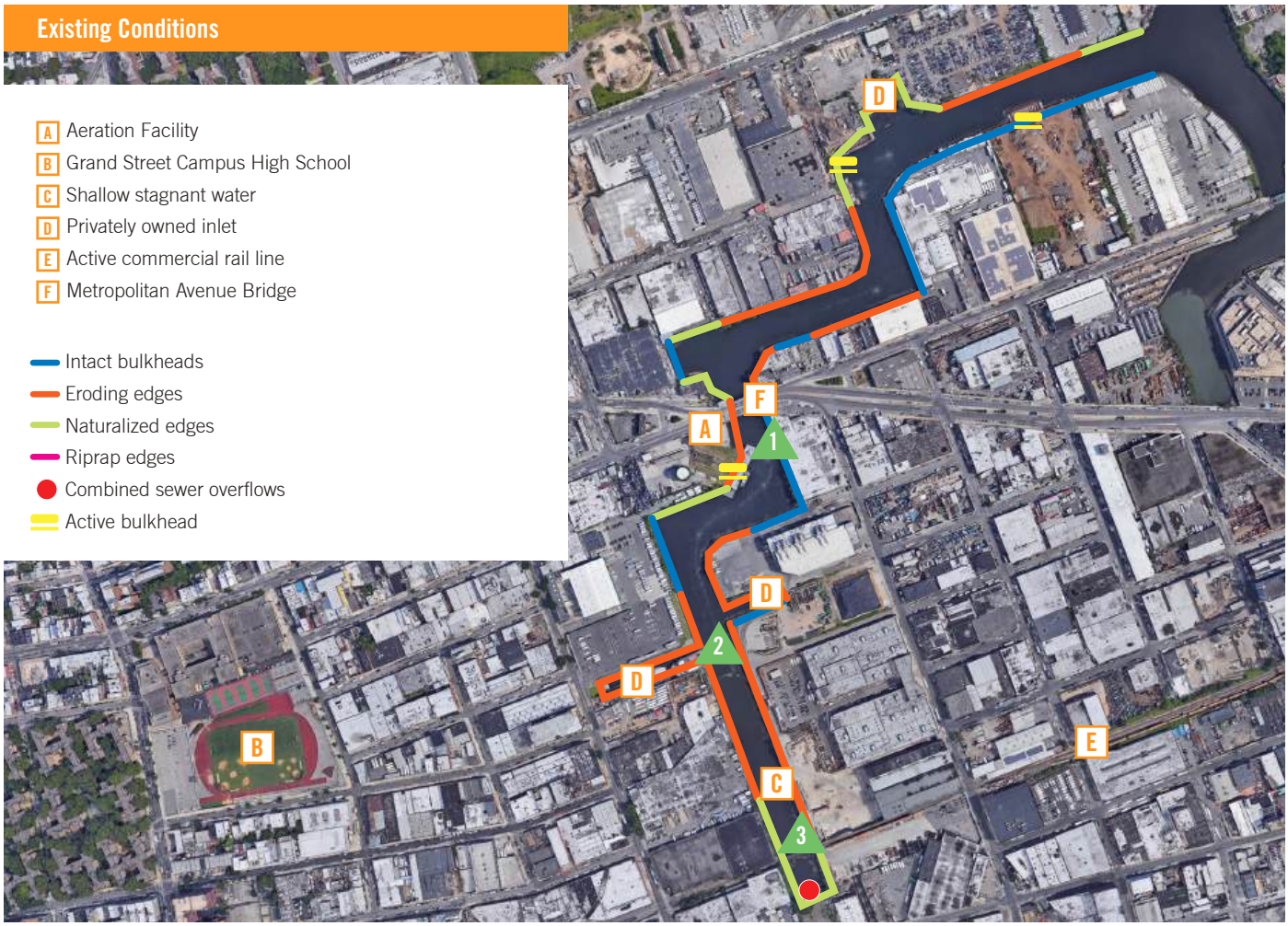
As one of the most low-lying, densely-developed, and highly contaminated stretches of the Creek, English Kills needs significant investment in shoreline resilience, upland green infrastructure, public access, remediation, and restoration. Once these investments are made – during the Superfund clean-up or through the ongoing investment in green infrastructure throughout the English Kills watershed – this reach has untapped potential at every turn. With pockets for parks, shallows ideal for salt marsh restoration, shorelines poised for reconstruction, rooftops ready to be greened, and city streets and sidewalks being redesigned for stormwater capture and control, English Kills is a perfect living laboratory for urban clean water innovation.

Pocket wetlands nestled into protected corners and planted softened edges where bulkheads are not necessary can bring oxygen and life to an industrialized dead zone.





Existing Conditions



REMEDIATION

The innermost reach of the Creek is loaded with toxic sediments and ongoing discharges of oil, combined sewer pollution, and a host of other contaminants. Through the Superfund process, existing toxic contamination should be removed and ongoing sources capped, to prevent recontamination in this stagnant, largely isolated tributary to the Creek. Special attention is needed in the tributaries and at the head of the waterway, where sediments have built up over a century of pollution.

RESTORATION

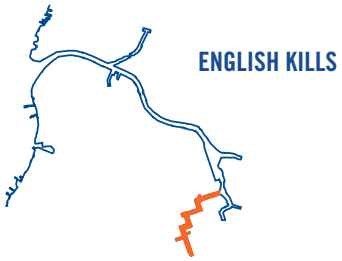
Pocket marshes, creating flow and habitat throughout the reach, and a treatment wetland in shallow areas at the head-end improve ecosystem function and improve water quality. WEDG guidelines provide area industry with examples and standards to generate restoration from shoreline stabilization projects. Re-imagined turning basins, coupled with a hard look at stream daylighting and hydrologic flow barriers will help the ecosystem here support cleaner waters throughout the Creek.

RECREATION

Reaching deep into Bushwick, surrounded by warehouses, commercial districts, and densely developed neighborhoods, open space along and around English Kills for recreation is lacking. Adding a public park at the head of the tributary, a basin boardwalk along and around the tributary, and protected pedestrian walkways at the water edge would provide the community with a full ecosystem of enjoyment; enhanced community connections also will help with long-term tributary stewardship.

RESILIENCE

Low lying properties vulnerable to climate change – which surround this reach – represent prime opportunities for innovation in urban resilience. As with the rest of the Creek, shoreline redesigns and saltmarsh restoration with graded slopes that protect vulnerable businesses from flooding must be considered, but will be difficult to design given the compactness of the tributary. Redesigning rooftops and parking lots for stormwater capture will help alleviate some upland storm impacts to this reach.



REMEDIATION RESTORATION RECREATION RESILIENCE

Light Improvement Projects

1. Metropolitan Avenue Water Access

A city-owned land on the northwest side of the bridge is converted into a community access point for English Kills; shoreline restoration and green design ensures any new structures help promote the ecosystem as well as recreation.

2. Metropolitan Avenue Overlook

An additional sliver of city-owned land on the Southeast side of the bridge incorporates a small planting area and overlook onto English Kills.

3. Remediate Active Seepage Sites

These bulkheads are documented ongoing sources of pollutions where petroleum enters English Kills. An improved recovery system and shoreline reconstruction prevents further contamination.

4. New Aeration System

If oxygen levels remain low in coming years a different aeration system that isn't prone to failure and does not aerosolize potentially contaminated waters should be installed.

5. Enclosed Structures at TNT Scrap Metal and Charles King

Open use that create dust or involve the movement of materials that could end up in the water or blowing off-site should be covered. The incorporation of green roofs or solar panels would help mitigate stormwater runoff or energy needs.

6. Colossal Media Shoreline Redesign

The Waterfront Alliance's Waterfront Edge Design Guidelines(WEDG) promotes access, resiliency and ecology. WEDG was used as a tool to conceptualize these elements and the aims of the landowner, to protect against storm surge through flood proofing of the building base, native vegetation including restored fringe marsh, places to sit by the water, and direct water access. See page 120.

Heavy Improvement Projects

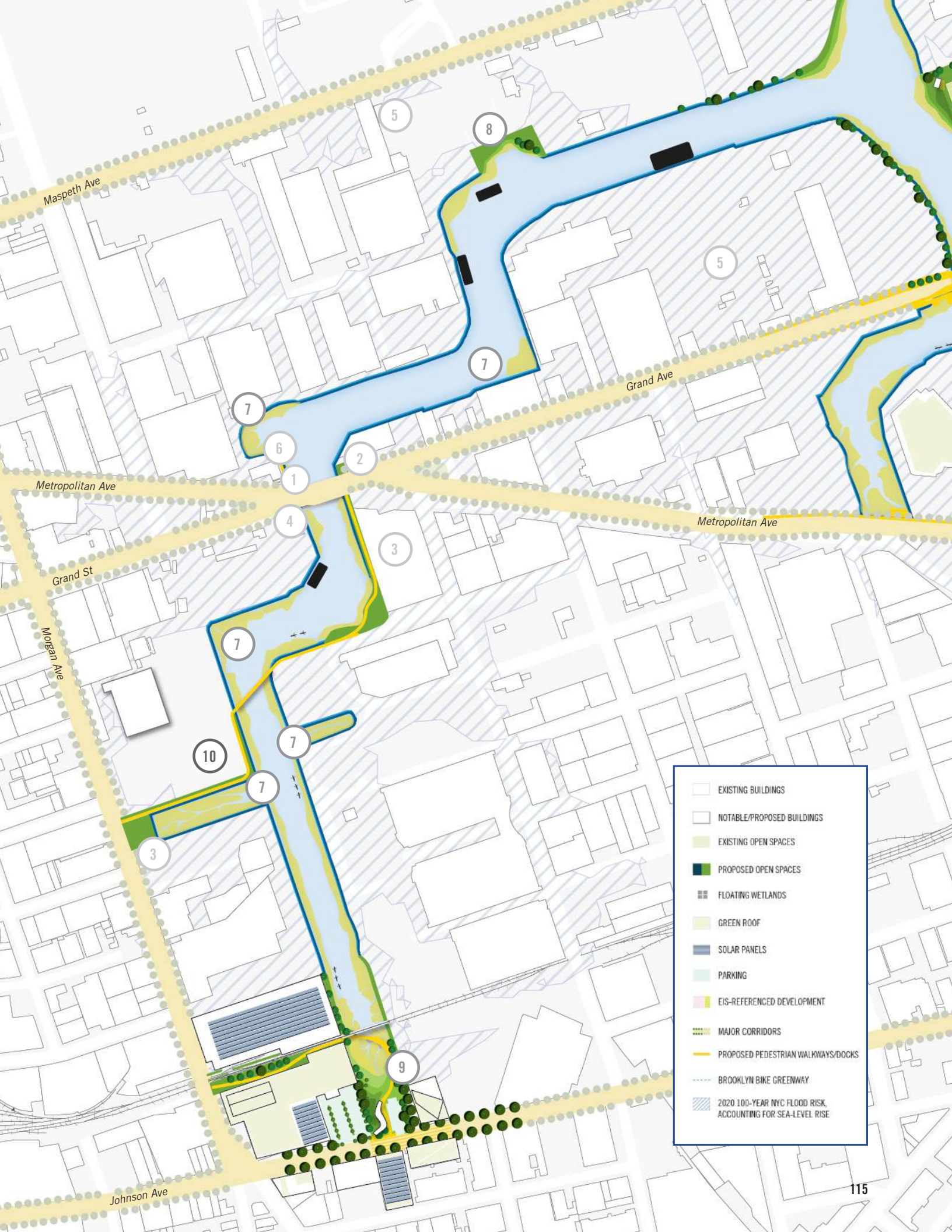
7. Pocket Marshes

8. Kills Cove

9. New Head of Creek Park

Aspirational Improvement Projects

10. New Basin Boardwalk


Maspeth Ave
Grand Ave
Metropolitan Ave
Metropolitan Ave
Grand St
Morgan Ave
Johnson Ave
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3
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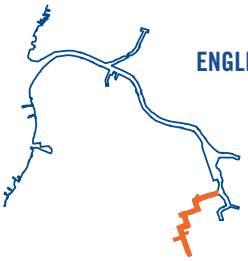
EXISTING BUILDINGS
NOTABLE/PROPOSED BUILDINGS
EXISTING OPEN SPACES
PROPOSED OPEN SPACES
FLOATING WETLANDS
GREEN ROOF
SOLAR PANELS
PARKING
EIS-REFERENCED DEVELOPMENT
MAJOR CORRIDORS
PROPOSED PEDESTRIAN WALKWAYS/DOCKS
BROOKLYN BIKE GREENWAY
2020 100-YEAR NYC FLOOD RISK, ACCOUNTING FOR SEA-LEVEL RISE



Priority Projects

7 Pocket Marshes

Corktown Common, Toronto, MVVA

English Kills has a number of unnatural corners which inhibit the natural flow of water and offer little maritime value. Assuming the likelihood of dredging to remove sediment contamination and possible shoreline restructuring in many of these areas, each of these corners offers opportunity for a shoreline redesign and grading with clean fill to create intertidal and salt marsh habitat.

8 Kills Cove

Swindler Cove Park, Harlem River

One of the few refuges for wildlife in the largely hardened-edge English Kills, this Cove, located just before the first major turn in this tributary's run into the heart of Bushwick, should be enhanced and expanded. Bordered upland by a warehouse and a vacant (but likely contaminated) former car impound lot, the Cove is a sheltered pocket of marsh grasses and fishing perches for herons, egrets, and other waterfowl. By clearing out crumbled concrete and rubble from the Cove, shoring up the edges of this naturally occurring inlet, and designing terraced in-water wetland ledges, the Kills Cove will bring back even more value to the English Kills ecosystem.

9 New Head of Creek Park

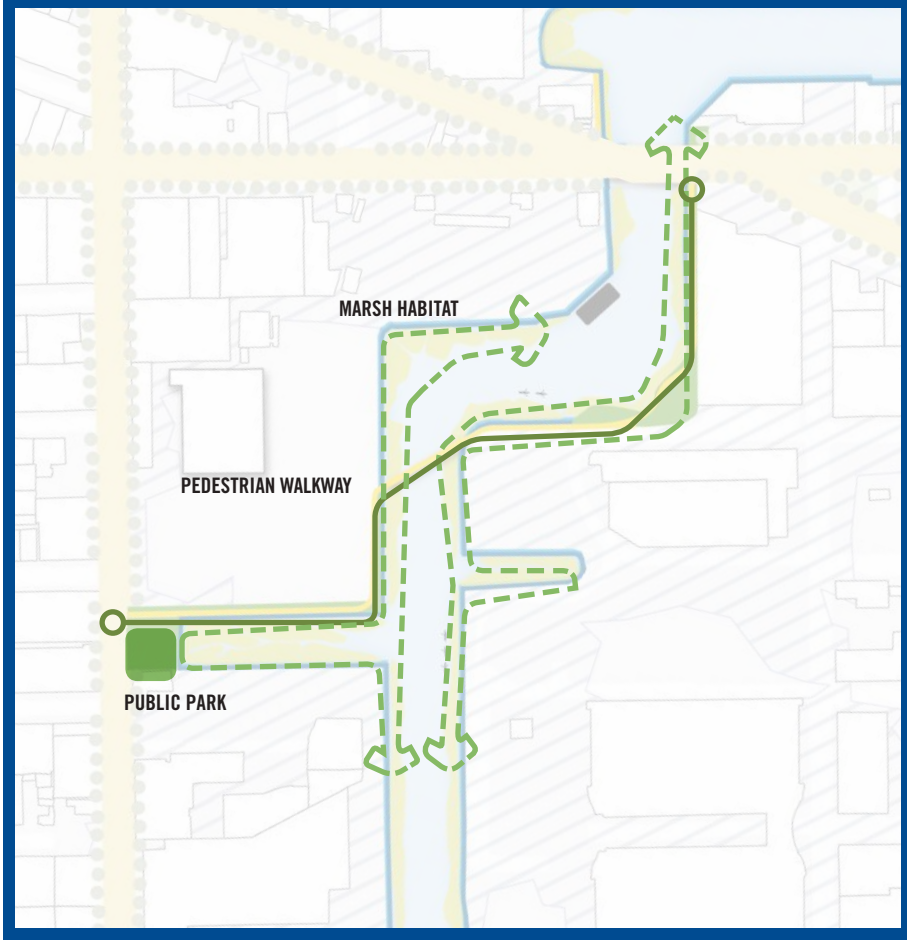
The MTA-owned parking lot at 451 Johnson Avenue and adjacent shoreline area transformed into a public park that overlooks the very head-end of Newtown Creek, 3.8 miles from the East River. An elevated boardwalk would connect the park area over restored marsh habitat and alongside the rail line to Morgan Avenue. Improvements to water quality to make this project desirable would only be achieved with a massive reduction of sewage from the CSO at the head-end. Although small in square footage, the park would provide much needed green space.

10 Critical Path Project / New Basin Boardwalk

Houtan Park, Turenscape

Squibb Park Bride, Brooklyn, Inhabitat

If designed as a fixed structure the bridge would require a de-listing of navigability for the last stretch of English Kills, which would allow for marsh restoration and improved hydraulic flow and water quality.

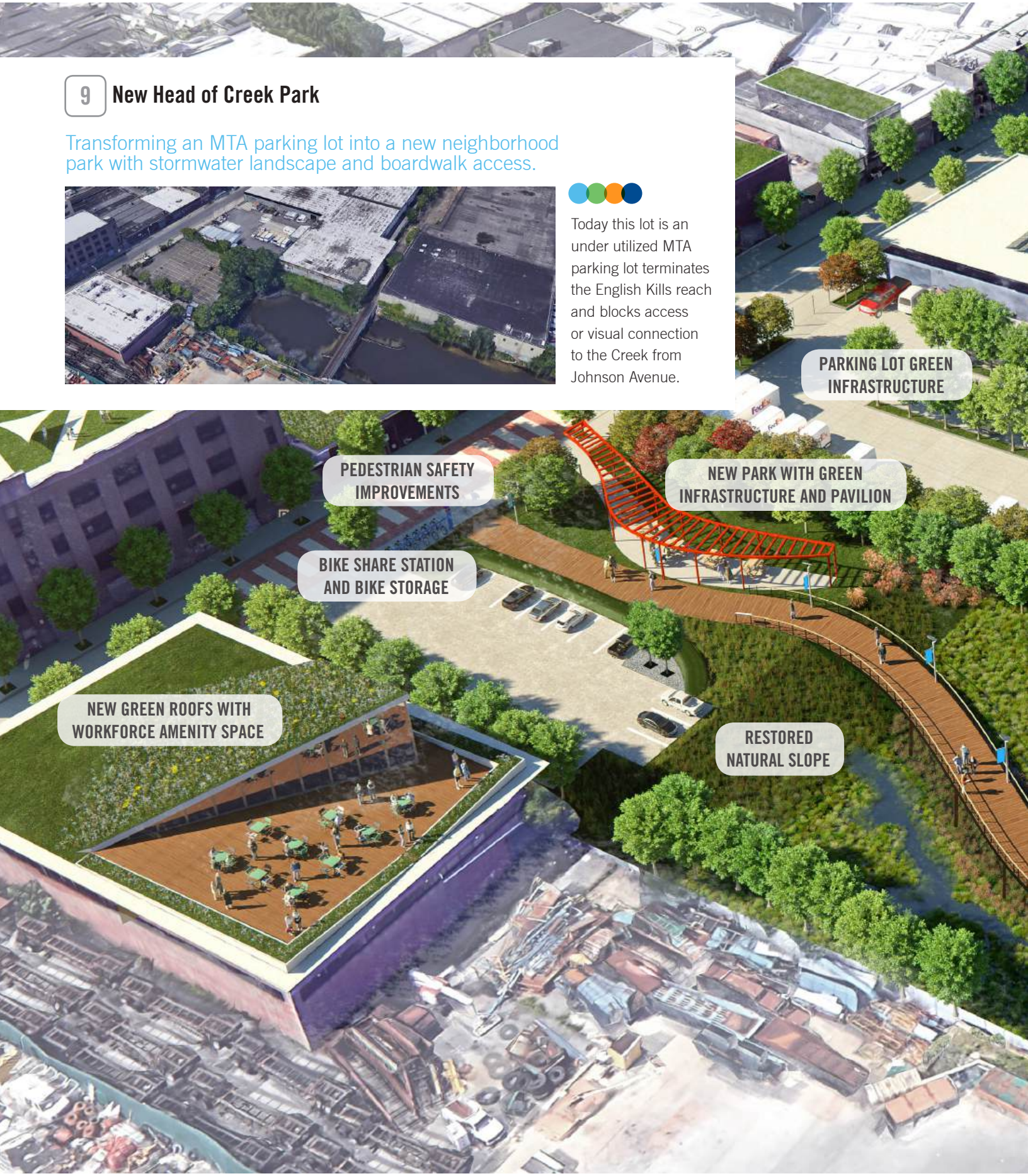


A pedestrian walkway is envisioned that would connect Morgan Avenue to the Southeast corner of Metropolitan Avenue Bridge. The path would go creekside along the Frito-Lay facility, connect to a pedestrian bridge that crosses English Kills, and continue along the eastern bank to Metropolitan Avenue. If designed as a fixed structure the bridge would require a de-listing of navigability for the last stretch of English Kills, which would allow for marsh restoration and improved hydraulic flow and water quality. In sum, the path would require access and easements along the shoreline of three private parcels.

9 New Head of Creek Park

Transforming an MTA parking lot into a new neighborhood park with stormwater landscape and boardwalk access.

Today this lot is an under utilized MTA parking lot terminates the English Kills reach and blocks access or visual connection to the Creek from Johnson Avenue.

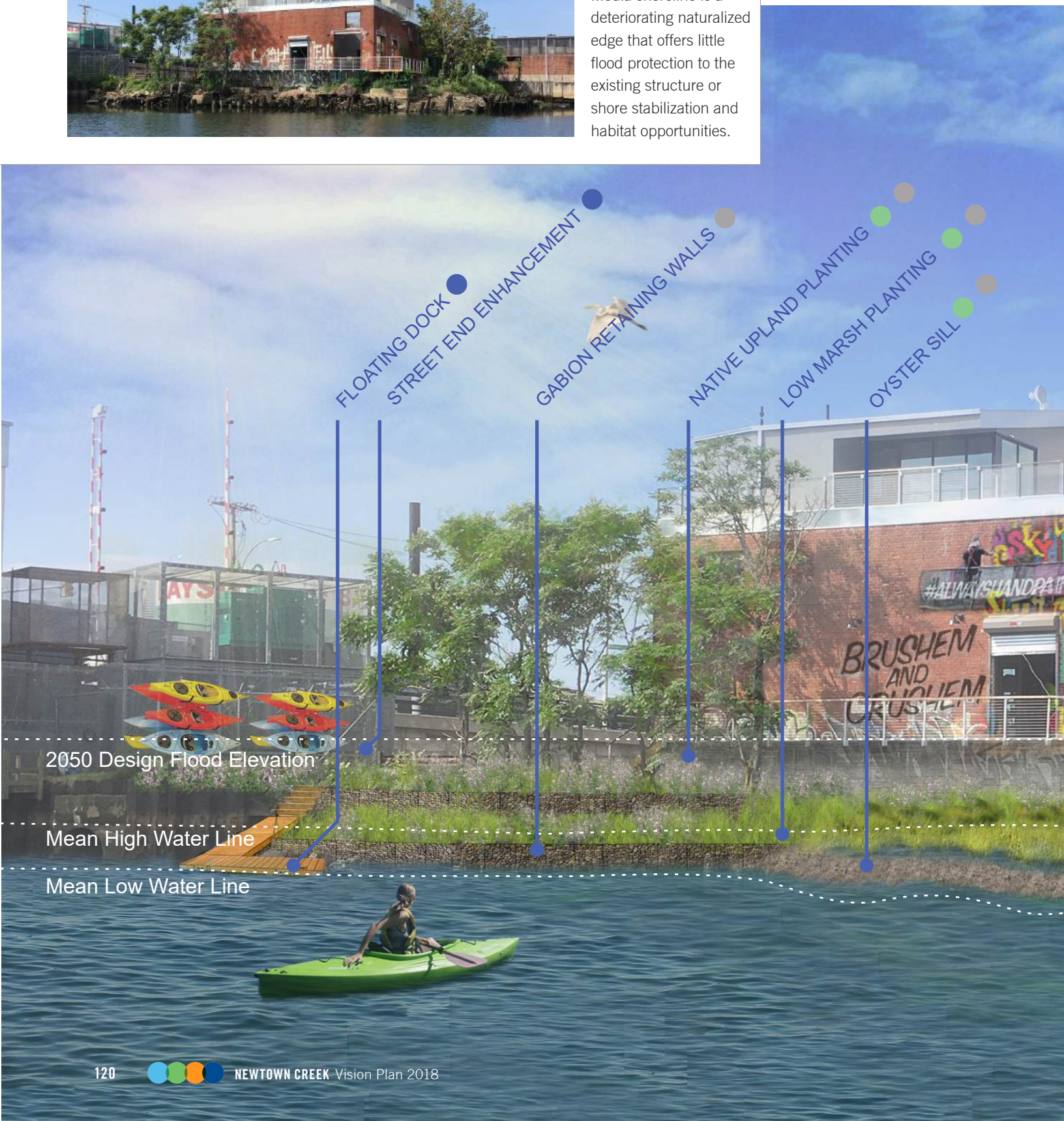



STREET TREE AND STREETSCAPE GREEN INFRASTRUCTURE
NEW FENCE AND PROTECTED PEDESTRIAN WALKWAY
NEW GREEN ROOFS
TREATMENT WETLANDS
NEW WETLAND BOARDWALK
OVERLOOK AND VIEWING PLATFORM

6 Colossal Media Shoreline Redesign

Working with the Waterfront Alliance to test WEDG principles at private industrial waterfront sites

Today the Colossal Media shoreline is a deteriorating naturalized edge that offers little flood protection to the existing structure or shore stabilization and habitat opportunities.




WEDG
access
resiliency
ecology
HIGH MARSH PLANTING
CONCRETE FLOOD WALL
BEACH GET-DOWN
CREEKSIDE TERRACE

08. CREEK-WIDE CONCEPTS

Looking across the Creek to address issues and implement holistic strategies that benefit all reaches.

Breaking Newtown Creek into eight separate reaches enabled us to focus on individual projects and site-specific improvements. A comprehensive approach, however, enables understanding of complex issues that exist across multiple reaches, boroughs and neighborhoods. A full Creek analysis moves beyond the political and geographic configurations of the watershed that limit and isolate complex issues.

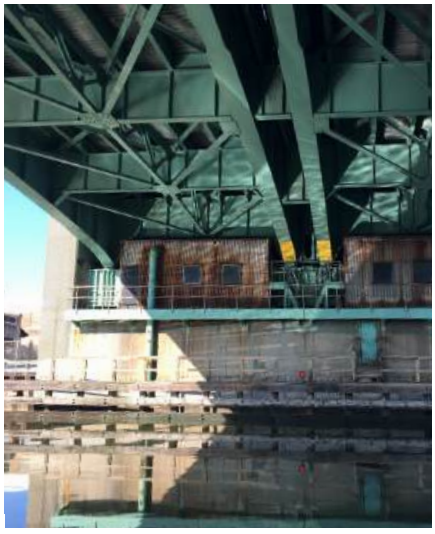
During our visioning conversations, community members identified a number of issues that affect multiple reaches. A number of solutions were identified that demanded – and indeed were suited for – implementation throughout the Creek's watershed, such as green infrastructure.

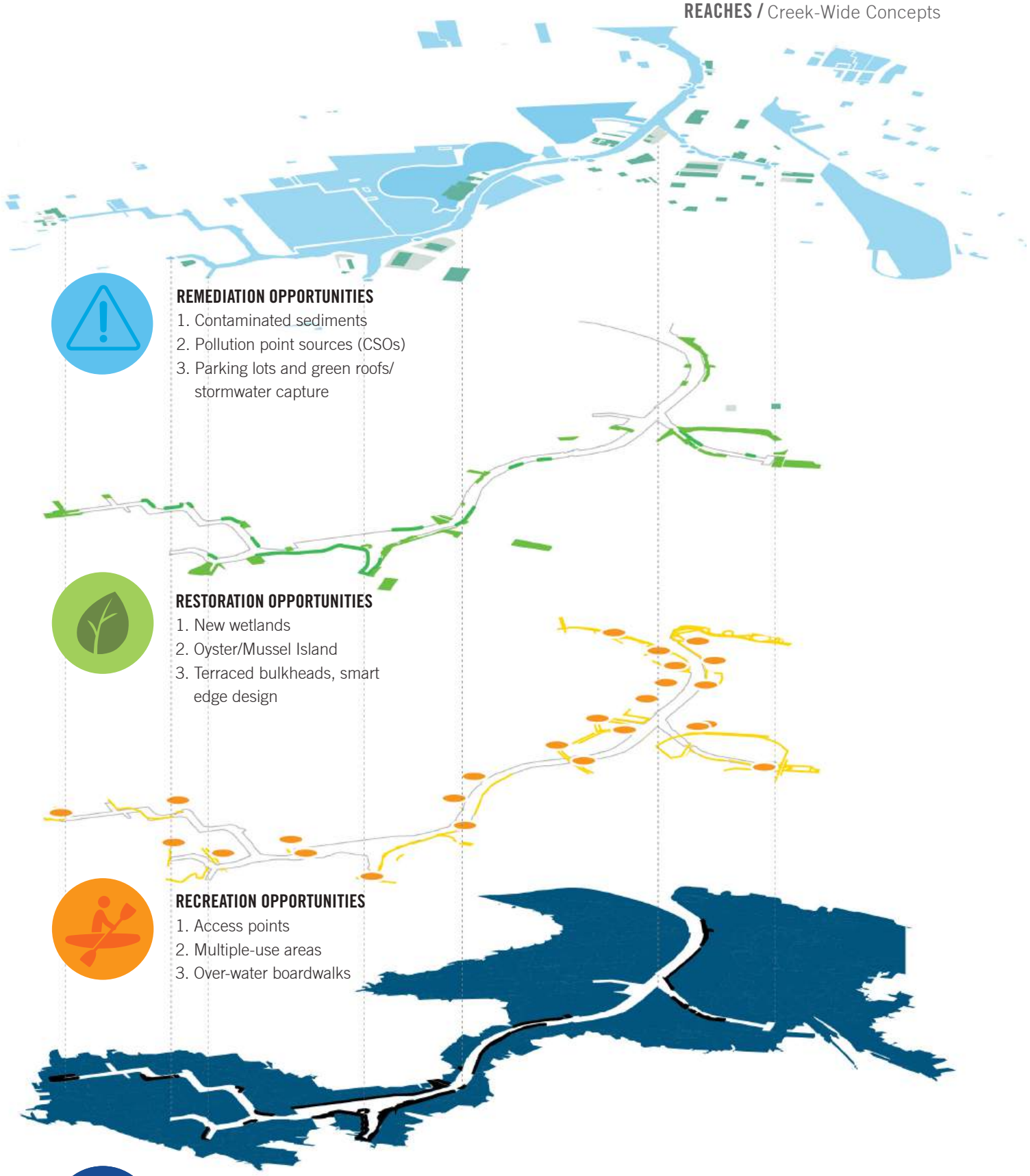
As we sifted through these Creek-Wide solutions, two overarching policy recommendations – gleaned from the community's ideas and advice about the future of the Creek – emerged as key factors in the ultimate remediation and restoration of this waterway.

The first recommendation was all about interagency planning and coordination. Due to the complex nature of each and every issue facing Newtown Creek, city, state and federal agencies must share and integrate collective goals to achieve remediation, resilience, restoration, and recreation.

The second recommendation that emerged was all about stewardship – at multiple levels. Just as there are specific projects (like street-end parks or rebuilt wetlands) that will resonate with different stakeholders based on where they may live or work, there are also issues that impact all stakeholders regardless of interest – from sea level rise, pedestrian safety, air pollution mitigation and economic growth for local businesses. Increasing stewardship is essential for revitalizing Newtown Creek going forward. Just as the "Think Globally, Act Locally" mantra helped spearhead environmental awareness and action in years past, we hope this report, and particularly the ideas that follow, encourages folks to develop greater stewardship of their favorite areas while better understanding the entire Creek as an ecosystem.

Focusing on interagency collaboration and fostering stewardship to make wholesale change across the entirety of the Creek and surrounding neighborhoods.





REMEDIATION OPPORTUNITIES
1. Contaminated sediments
2. Pollution point sources (CSOs)
3. Parking lots and green roofs/ stormwater capture

RESTORATION OPPORTUNITIES
1. New wetlands
2. Oyster/Mussel Island
3. Terraced bulkheads, smart edge design

RECREATION OPPORTUNITIES
1. Access points
2. Multiple-use areas
3. Over-water boardwalks

RESILIENCE OPPORTUNITIES
1. Soft edges
2. Berms/Flood protection
3. Better bridges

REMEDIATION RESTORATION RECREATION RESILIENCE

Improvement Projects

1. Parking Lot Redesign

Many Creek-side properties dedicate a substantial footprint to truck parking. Implementing more efficient parking layouts helps provide more valuable real-estate for active work areas that have room for co-located green infrastructure and shoreline softening.

2. Reducing Marine Debris

Floatable containment booms restrict waterborne access, prevent surface water flow, and fail to fully capture solid waste discharges into waterways from sewers and storm drains. An improved system – with upland debris-control infrastructure investments and in-water innovations – are vital steps for keeping the Creek trash-free.

3. Enforced No Wake Zone

Wakes can damage sensitive shorelines and restoration efforts as well as disrupt remediation efforts and endanger recreational boaters; new no-wake zones around the Creek protect ecosystems and water users.

4. Reverse Recent Encroachment onto Public Property

A number of city- and state-owned parcels have been encroached upon – by both private entities and other public agencies – a situation which restricts potentially beneficial use of those parcels for resilience or restoration investments or for other such public uses.

5. Sea Level Rise Adaptation

Sea level rise will have significant impacts on many shoreline properties along Newtown Creek in the coming century. Shoreline elevations may be feasible in some locations but a drastic evaluation of what will be required to maintain active use throughout the area is a top priority in planning for the next 100 years.

6. Green Roofs on Industrial Buildings

More aggressive incentives and funding mechanisms are needed to create green roofs on the many large industrial buildings which currently have no stormwater capture features in place; industrial rooftops can be ideally suited for deployment of this stormwater control technology.

7. Green Infrastructure throughout Watershed

Smaller buildings throughout the Newtown Creek watershed should also be highly incentivized to mitigate stormwater with green roofs, blue roofs, downspout planters or storage systems, capturing stormwater before it becomes a problem in already-overloaded sewer systems.

8. Renewable Energy Deployment

Industrial zones should be a focus for increased use of solar and other renewable sources of clean energy; the establishment of micro-grids would be a big step toward improved resiliency.

9. Wayfinding and a New Network of Educational Signage

To better connect residents and workers to Newtown Creek, a series of public signs should be installed throughout the area highlighting the local environmental and historical features, including directions to local access points.

10 Historic Stream and Groundwater Investigation

Identifying areas where ground water is entering sewer systems is a vital step toward preventing unnecessary capacity burdens. Where feasible, daylighting freshwater streams and groundwater flows should be well mapped and communicated to the public.

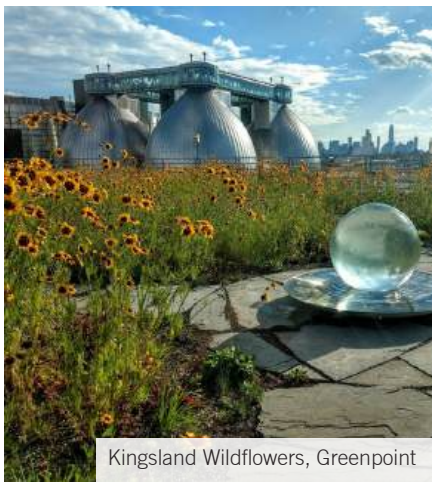
11. Improved Pedestrian and Bicycle Infrastructure

12. Stormwater Capture from Bridges and Overpasses

13. Funding for Shoreline Redesign and Construction

14. Strategic De-listing of Navigational Areas

Inner Harbor Water Wheel, Baltimore



Kingsland Wildflowers, Greenpoint

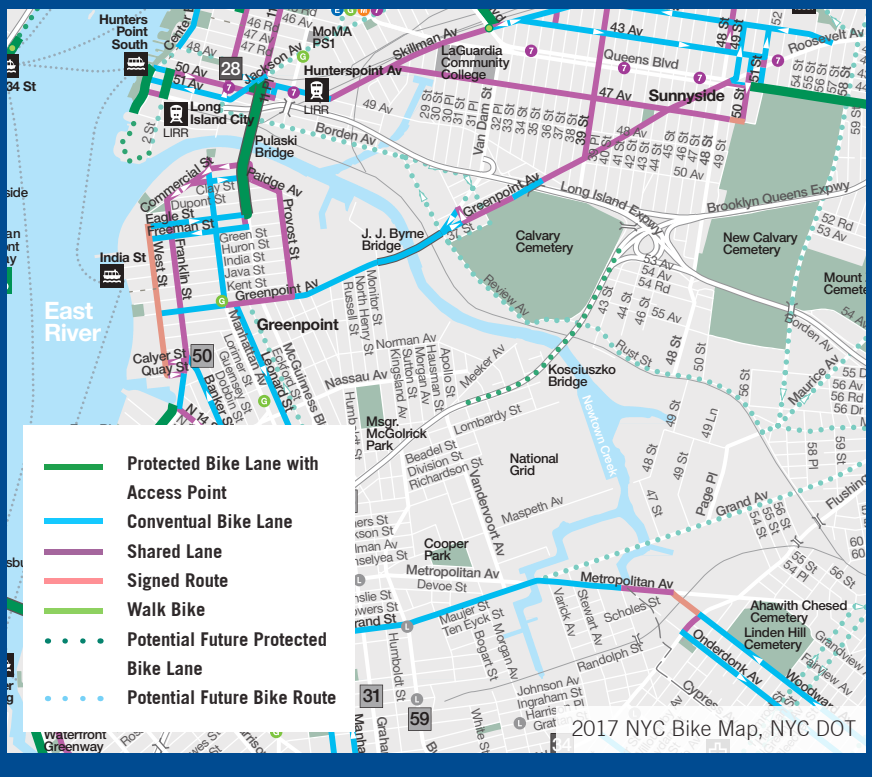
The Yards Park, Washington, D.C.

11 Critical Path Project / Improved Pedestrian and Bicycle Infrastructure

Before and after pedestrian improvements, NYC DOT

Brooklyn Greenway Initiative bikeway

Many of the surrounding streets still have inadequate infrastructure for safe pedestrian, bicycle and automobile use, including dangerous street crossings and lax enforcement of traffic violations.



2017 NYC Bike Map, NYC DOT

Street safety continues to be a serious issue within industrial areas and along truck routes. Many of the surrounding streets still have inadequate infrastructure for safe pedestrian, bicycle and automobile use, including dangerous street crossings and lax enforcement of traffic violations. There have been numerous deaths on the streets near Newtown Creek in recent years and a growing population of people walking and biking in the area need improved protections in place. In some instances, wide, uninterrupted sidewalks like those along Review Avenue (adjacent to Calvary Cemetery) can be redesigned to promote safety and access.

12 Critical Path Project / Stormwater Capture from Bridges and Overpasses

I-5 Colonnade Park, Seattle

Underground Ink Block, Boston, MA

There are ample opportunities to collect the polluted runoff from the Pulaski Bridge, Brooklyn-Queens Expressway (BQE), and the Long Island Expressway (LIE).

Underpass Park, Toronto, Ontario

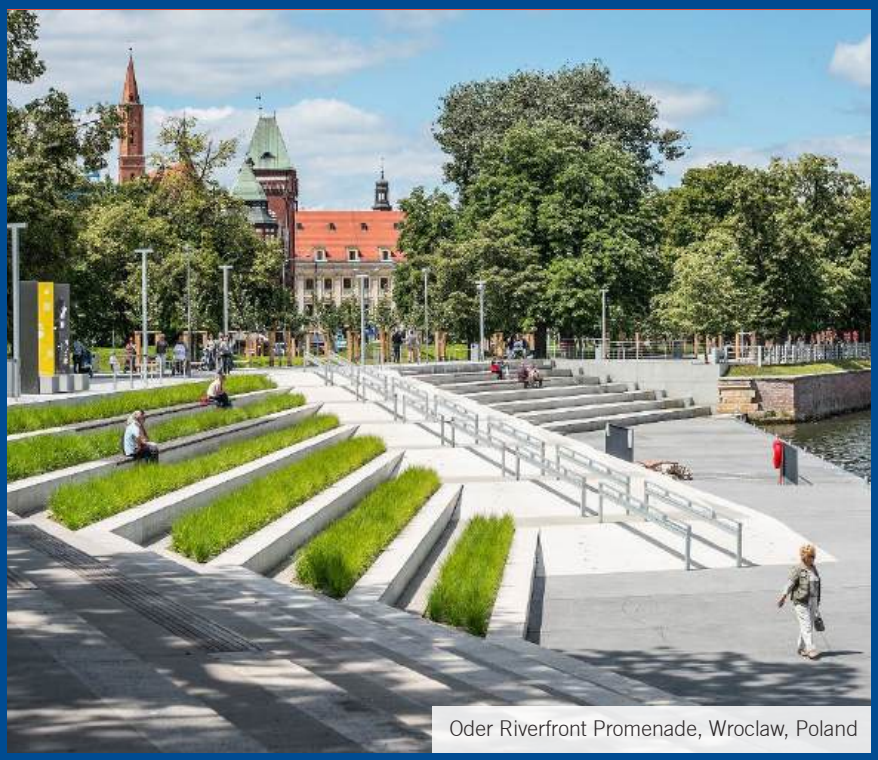
A number of elevated roadways drain large amounts of untreated stormwater into combined sewer systems or directly into the Creek. There are ample opportunities to collect the polluted runoff from the Pulaski Bridge, Brooklyn-Queens Expressway (BQE), and the Long Island Expressway (LIE). Technology for removal of contaminants (ideal for separate sewer areas) or storage during rain events (ideal for combined sewer areas) exists and is waiting to be implemented. In most of the City, installing such roadway runoff capture facilities can be complicated by the densely-packed nature of most neighborhoods. The Newtown Creek crossings, however, are largely located in industrial areas with ample ground-level space for installing tanks, oil-water separator systems, trash filtration, and other treatment technologies; indeed, the new Kosciuszko Bridge includes enhanced runoff collection capabilities.

13 Critical Path Project / Funding for Shoreline Redesign and Construction

Terraced gabion wall, Harlem River Park

Wetland attached to bulkhead, Newtown Creek

As Superfund remediation begins, there is a risk of increased installation of sheet-pile bulkheads that diminish existing ecological function along the Creek.



Oder Riverfront Promenade, Wroclaw, Poland

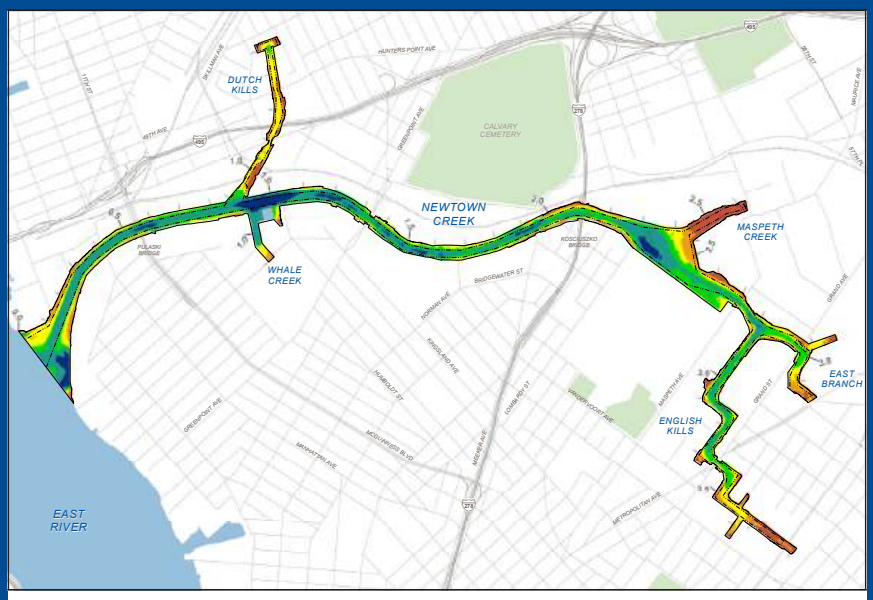
While current permitting for shoreline construction can be expensive and preventative for property owners looking to rebuild bulkheads and stabilize properties, processes do not incentivize shoreline design that provides ecological benefit. As Superfund remediation begins, there is a risk of increased installation of sheet-pile bulkheads that diminish existing ecological function along the Creek. There are numerous shoreline designs and materials available, such as decking over riprap or terraced bulkheads, accommodating industrial businesses and protecting the water from contamination, while also providing much needed habitat and ecological benefit.

14 Critical Path Project / Strategic De-listing of Navigational Areas

Canoes at Grand Street Bridge

Alley Creek, Queens

A de-listing of navigability creates space for salt marsh restoration, naturalized bathymetry to improve water circulation, and the elimination of restrictive and expensive costs to maintain movable bridges.

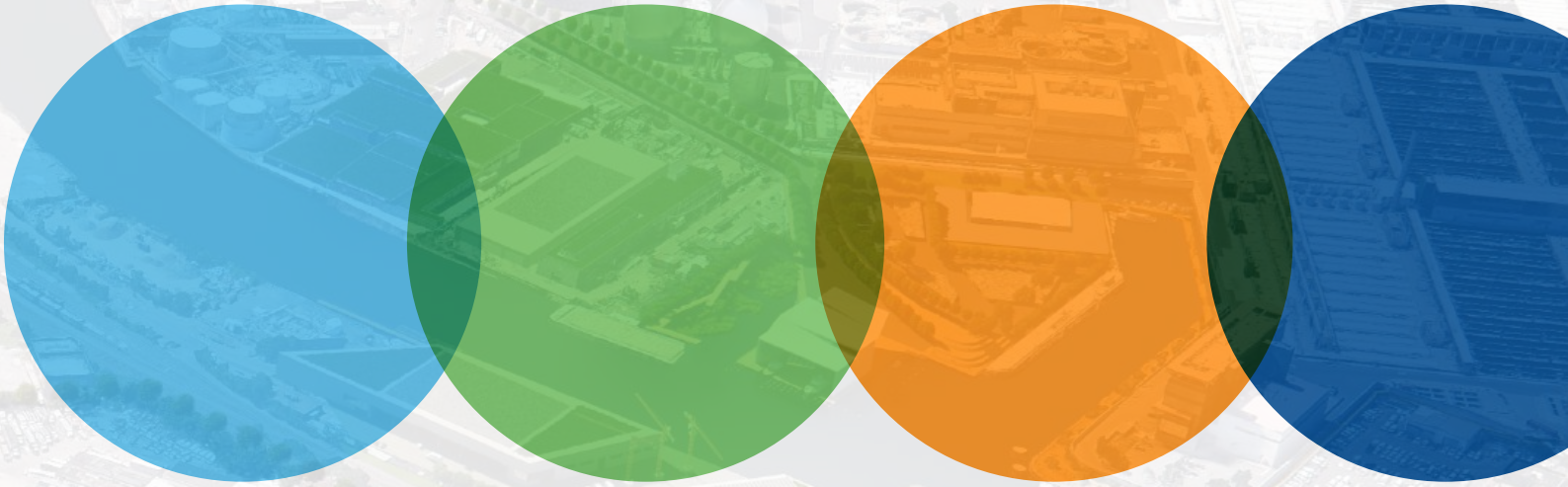


Bathymetery Elevations (feet in NAVD88)

-4.9 – 1.8 -9.9 – -5 -14.9 – -10 -19.9 – -15 -24.9 – -20 -31 – -25

Bathymetry Elevations, Anchor QEA

Considering the ecosystem and community benefits of in water restoration, as well as the needs of the Significant Maritime Industrial Area, certain federally navigable channels are re-examined. A de-listing of navigability creates space for salt marsh restoration, naturalized bathymetry to improve water circulation, and the elimination of restrictive and expensive costs to maintain movable bridges. These areas are all currently too shallow for navigation and have gone unused for many years. To be sure, supporting maritime accessibility through the majority of the Creek, Superfund remediation strategies need to allow for continued maintenance and dredging into the future.



System Solutions

Resilient Industry

NYC PLANNING

RESILIENT INDUSTRY STUDY

The Department of City Planning conducted the Resilient Industry Study to better understand flood risk for industrial businesses and propose cost-effective strategies to prepare for future floods and coastal storms.

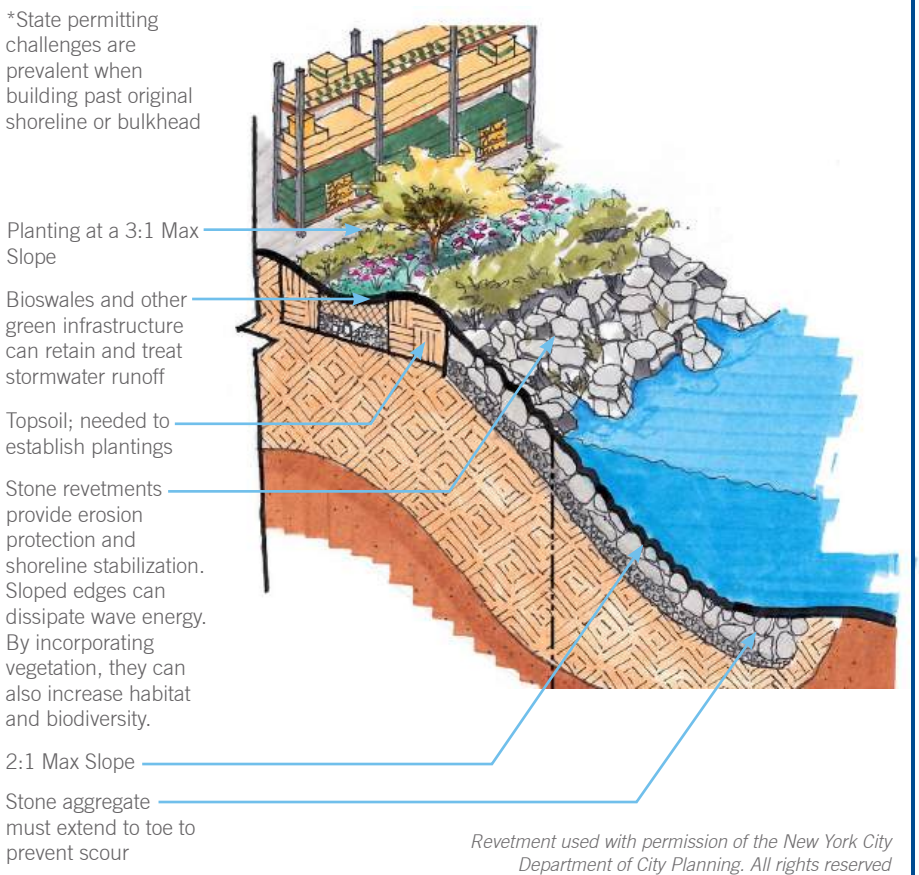
The study describes a range of strategies to protect industrial businesses from flooding, including elevating mechanical and electrical equipment, flood proofing critical spaces, and developing preparedness plans to minimize losses. Best practices to prevent hazardous material spills and leaks on industrial sites are documented to help businesses protect their employees, neighborhoods, and the environment. Where possible, hazardous materials should be permanently stored in areas outside of the floodplain in storage containers that are watertight, sheltered from rain, isolated from stormwater runoff, and stored using overpacks to prevent spills. For smaller containers, flammable and acid cabinets can help secure and contain hazardous substances. Where infeasible to relocate outside of the floodplain, containers and tanks that contain hazardous substances should be elevated, safely secured, and anchored.

The study also demonstrates strategies to repair or rebuild shoreline infrastructure, using bulkheads or revetments to stabilize sites, reduce erosion, and help prevent pollutants from entering waterways during floods. Effective stormwater management, including green infrastructure in areas where the concentration of contaminants are low, is also discussed as an important component of industrial resiliency.

Visit **nyc.gov/resilientindustry** to download the full report with industrial resiliency best practices.

RECOMMENDATIONS FOR SPILL PREVENTION DURING FLOODING EVENTS

- Use appropriate storage containers
- Properly label all containers
- Segregate chemicals
- Minimize the amount of chemicals on site
- Properly elevate all materials
- Schedule pick-ups and deliveries appropriately
- Ensure inventory records are current
- Check weather forecasts regularly
- Review and implement emergency procedures if a Risk Management Plan is required for your facility



Urban Industrial Resilience

Though best practices are part of developing industrial resilience, and protecting communities near Newtown Creek, they are only a small piece of the puzzle. Resiliency is more than taking steps to elevate equipment and seeking offsite storage and thoughtful management of hazardous materials in a flood zone. It is even more than progressive bulkhead and shoreline design and strategic green infrastructure placement. (Clearly, though, every step toward removing hazards and making room for nature is a step in that direction). Waterfront industrial resilience is the sum of these parts and should be viewed through the lens of holistic and integrated approaches to operating in any sensitive and vulnerable location, especially and vitally for densely developed waterways like Newtown Creek.

Newtown Creek is zoned for industry and some commercial uses from the mouth to the head tributaries, with vibrant and historic residential communities throughout the area. Because the Creek's industrial areas generally lie within the flood zones and along the waterfront, they tend to amplify vulnerabilities and risks; when flooding occurs, water may not only be damaging for usual reasons associated with flooding but also for bringing open use industrial site hazardous materials, mismanaged hazardous materials, contaminants in brownfields, garbage, and debris into direct contact with people and homes. With large industrial buildings, the urban heat island affect is also exacerbated; high temperatures in the industrial landscape surrounding Newtown Creek, during heat waves and during normal weather patterns, make the temperatures of the surrounding area much higher.

Throughout this process, it was clear that the community sees value in the ongoing sustained presence of industrial and commercial sectors around Newtown Creek. These sectors provide jobs, economic stability, opportunities for social justice and environmental justice communities, and more. Given the heat, flooding, toxicity and air quality risks these sectors also pose, balance must be achieved where public health and the environment are part of plans for industrial investment and best management practices. Critical but also a risk, sustainable and smart solutions are vital for healthy industrial watersheds.

Newtown Creek Nature Walk

Industrial parking on an elevated platform along Newtown Creek

Better Shorelines

Shoreline and edge design plays a critical role for ecosystems of all urban waterfronts. These edges function as vital habitat for marine wildlife, shape and direct tidal ebb and flow throughout the Creek, and play a critical role in coastal resiliency strategies. There are a number of shoreline design options available based on property location, needs, uses, and potential. The remediation through the Superfund process will likely require reconstruction for a number of shoreline properties along the Creek, offering a valuable opportunity for more dynamic and beneficial designs. Below are just a few examples of waterfront edge designs based on current and future waterfront property parameters surrounding Newtown Creek.

1. ACTIVE BULKHEAD

Certain industries located on the Creek require a stable shoreline for the docking of barges and storage of heavy equipment and materials. These hard edges typically take the familiar form of a steel sheet pile or concrete wall. These materials are often too flat and smooth to offer any valuable marine habitat for critters (mussels, fish, crabs, etc) that seek nooks to grow on or hide within. Fortunately, there are a number of applicable methods for improving ecosystem functions and resiliency of traditional bulkhead designs.

DECK OVER RIPRAP

Active bulkheads do not need to be a flat surface extending all the way to the Creek bottom. Just as many piers are built, the edges of properties can consist of intensive decking supported by pilings underneath. The underside area can be filled with riprap to provide crucial intertidal habitat and help absorb wave action. There are numerous examples of this design functioning well for heavy industrial uses.

BULKHEAD PLANTERS

Thanks to the efforts of one CUNY professor on Newtown Creek, we are discovering it is possible to create small pockets of healthy salt marsh habitat on industrialized shorelines. Planters can be positioned within the intertidal column alongside a bulkhead, within sheet pile cavities or near the margins of the property to allow small pockets of native species to thrive.

IMPROVE SURFACES

There is ongoing research and pilot installations to demonstrate processes to alter the otherwise flat surfaces of traditional bulkheads to create marine habitat. Even minor texturing and use of different materials can have a profound impact in transforming a shore that provides no ecological function to habitat for various mollusks.

2. INACTIVE BULKHEAD

The Superfund process will determine upland areas around Newtown Creek where contamination seeping from the shoreline edge and into the Creek must be contained. Sheet pile bulkheads are often used to prevent recontamination, sometimes driven deep into the ground. This does not mean, however, that the bulkhead must limit ecosystem function, resilience, and industrial best practices.

LIVING SHORELINES

When shoreline stability is needed but the active use of the bulkhead isn't required, engineered versions of naturalized shores can be implemented. This can include terraced bulkheads that provide a gradual slope from the land to the existing Creek channel, or well-designed configurations of riprap that include intertidal habitat. Additionally, gabions, or wire frame structures filled with rock, are structural and provide small niches of space that allow marine wildlife such as mussels and marsh grasses to adhere and grow.

UPLAND PLANTINGS

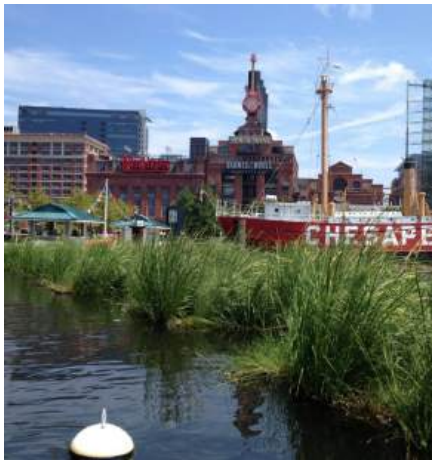
The upland areas adjacent to a bulkhead can also be designed to provide multiple benefits. Sponge parks and rain gardens are meant to capture excess stormwater runoff and when planted with native perennials, provide habitat to birds, butterflies, and other insects. They can be helpful in combating the heat island effect during warmer months and are appealing to look at, creating a more hospitable environment for those working nearby.

ELEVATE PROPERTY

When a site is large enough to move the building back from the waterway, elevation on fill allows room for landscaping which can create a gradual transition in grade changes, provide a usable open space and mitigate the impact of a raised ground floor on the streetscape. Elevating a site may provide reductions in flood insurance, or may allow for the entire site to be removed from the flood zone.

3. INACTIVE WATERWAY

Certain areas of the Creek, though designated as navigational channels, are currently inaccessible for most vessels, especially at low tide conditions. These areas offer great opportunities for a return to more naturalized environments that promote and protect native wildlife while also providing essential ecosystem services and storm surge mitigation. This includes constructed wetlands where salt marsh grasses and accompanying organisms like ribbed mussels improve water quality through the uptake and breakdown of various pollutants, including bacteria and nutrients. Incorporating such bioremediation strategies should be considered in any long term plan for the Creek.



TOOLS FOR PROPERTY OWNERS

WATERFRONT ALLIANCE

WEDG SCORE CARD

The Waterfront Edge Design Guidelines, WEDG, are intended for properties directly touching a waterbody and if followed achieves the goals of real and necessary change at the waterfront. With input from hundreds of waterfront experts, and support from government regulators, Waterfront Alliance created guidelines and an incentive-based ratings system. The guidelines are a logical, easy-to-use tool for any urban or suburban waterfront, with scorecards tailored for three types of uses, residential/commercial, parks, and industrial/maritime. For more information on WEDG go to

http://waterfrontalliance.org/what-we-do/waterfront-edge-design-guidelines/

Community Connections

Improvements to the way that the community connects with Newtown Creek are critical to realize the full benefits of proposed projects in this Vision document. Finding the water's edge is difficult, with streets and nearby major bridges providing no clear pathways to the water. The streets that do lead to water access are often busy industrial corridors. Without easy, inviting, and integrated ways to get to the water, the full potential of these waterways will never be realized.

Key proposed project sites along the Creek, like the two new Kosciuszko Bridge parks, street-end parks shown at Apollo and Meeker, new boardwalks and protected loops, and salt marsh restoration sanctuaries all represent critical and new access points to Newtown Creek, new open space, and new green and blue space for surrounding neighborhoods, schools, and LaGuardia Community College. The map to the right highlights some of these key projects as well as the communities that could utilize them.

Developing safe pathways is necessary for community members to realize the benefits of the community asset. Throughout the visioning process, there were few messages that resounded with the community as clearly as the need for better connections between the communities and the waterways. City planners know how to make corridors safe for pedestrians, and know how to lead people through the urban environment. The next step in this process is to develop these pathways. Cleaner streets, better lighting, and inviting communities are a great first step, but further innovations in wayfinding and street signs will transform Newtown Creek into a 'blue green corridor.'

Penny Bridge Street End

Maspeth Avenue Plank Road Street End

Newtown Creek Nature Walk


SUNNYSIDE
LONG ISLAND CITY
East River
VERNON BLVD
DUTCH KILLS
Greenpoint Ave
WHALE CREEK
Brooklyn-Queens Expressway
First Calvary Cemetery
Calvary Cemetery
Long Island Expressway
GREENPOINT
APOLLO STREET
MASPETH CREEK
McCarren Park
Brooklyn-Queens Expressway
GRAND STREET
Grand St
ENGLISH KILLS
WILLIAMSBURG
RIDGEWOOD
BUSHWICK
CONCENTRATION OF COMMUNITY AMENITIES
COMMUNITY AMENITY
COMMUNITY CONNECTIONS
POTENTIAL ACCESS SITES
PLANNED/POTENTIAL WATERFRONT PATHWAYS
LIRR
SUBWAY LINE
MAJOR CORRIDORS
BROOKLYN BIKE GREENWAY

Stormwater Solutions

CSO CAPTURE TUNNEL

A proposed large-scale stormwater capture tunnel would, according to the NYC DEP, capture hundreds of millions of gallons of CSO pollution over the course of a year. This tunnel would store that pollution until the Waste Water Treatment Plant had capacity to treat the stormwater-sewage mixture; pumps would then move all captured pollution out of the tunnel. The NYC DEP's plan for the tunnel, however, wouldn't see the project come online until at least the mid-2040s, if no delays in construction are encountered – meaning all of that pollution will continue to discharge, unabated, into the Creek for several more decades.

DUTCH KILLS CAPTURE

As one of the most isolated tributaries of the Creek, Dutch Kills' unique stormwater problems demand unique solutions. The tributary is burdened by combined sewer outfalls (the largest of which is at the head-end of the Kills), direct discharges (where water flows overland and off the edge of bulkheads), several stormwater outfalls (from streets and sidewalks), and pipes draining oils, brake dust, and garbage from several bridges and overpasses (including the Long Island Expressway).

Capturing much of this CSO pollution may be accomplished with the NYC DEP's recent Long Term Control Plan for Newtown Creek, but more investments will be needed in Green Infrastructure and private properties (new green roofs, for example) to fully address this problem – especially in smaller sewersheds. Street-side pollution controls, like permeable pavement or sponge parks, coupled with innovations in bridge and overpass stormwater capture and treatment will be needed at almost two dozen points around the tributary. With proposed new public access investments and bridge restoration work, there are many opportunities for local stormwater capture (and treatment) innovation.

TUNNEL EXPANSION

In the event that the EPA's ultimate Superfund decision requires more CSO capture than the City's proposed 62% tunnel can handle, the City may be required to widen, deepen, or otherwise expand the capacity for stormwater and sewage capture.

ADDITIONAL CSO STORAGE TANKS

If expansions to the City's proposed CSO storage tunnel will not achieve what the EPA requires, or in the event that the tunnel itself is not approved by the State agency overseeing NYC's sewer and stormwater efforts, the City may construct large stormwater storage tanks at parcels around the Creek, as it is currently designing in Gowanus.

GREEN INFRASTRUCTURE

Once thought of as merely an alternative to a large-scale sewer system, concrete-and-pipe solutions (so-called "grey infrastructure"), green infrastructure (GI) – street trees and subsurface stormwater storage, permeable pavement, green roofs, and the like – can be the most cost-effective and efficient way to keep stormwater out of our sewers and waterways. For watersheds overloaded with pollution like Newtown Creek, saturating streets and sidewalks, public parks, and parking lots with GI is a game-changing choice. GI can also clean the air, cool neighborhoods during the summer, and help with energy efficiency.

STREET-END SPONGE PARKS

Along the length of Newtown Creek, streets and sidewalks dead-end at the water's edge – ideal locations for public access, open space creation, and green infrastructure. Sponge Parks – where street-ends are converted into sub-surface holding tanks for up to (or more than) a million gallons of stormwater – are one solution that could significantly reduce local stormwater pollution. A pilot sponge park site in Gowanus has shown great promise, and with lessons learned from that facility, a number of these features could populate the banks of Newtown Creek.

SOLID WASTE

Beyond sewage, oil, and toxic pollution, Newtown Creek is also plagued by garbage and solid waste – everything from plastic straws, bottles, and bags to cigarette filters and sanitary wipes, basically everything you'd find littering a street, falling off a crumbing bulkhead, blowing off a garbage barge, or unintentionally flushed down a toilet. These wastes present an ongoing immediate and significant hazard to wildlife, public health, aesthetics, and recreation. Investments are needed in sewage and stormwater systems that screen out and capture any solid waste in stormwater flows. Installation of trash-wheels and other active methods for floatable-debris capture should be considered within the waterway itself. Improvements to solid waste, recycling, and garbage transfer facilities around the Creek are also vital, so that blowing garbage doesn't escape these sites' walls and land in the water.


East River
Queens Blvd
First Calvary Cemetery
Long Island Expressway
McCarren Park
Brooklyn-Queens Expressway
Grand St
POTENTIAL ACCESS POINTS
STREETS
PLANNED CSO TUNNEL
INDUSTRIAL LANDS, GI & GREEN ROOFS ENCOURAGED
BRIDGE-ASSOCIATED RECHARGE

Green Infrastructure

Environmental Protection

Department of Environmental Protection (DEP) to share with us their current and future Green Infrastructure initiatives and also share a Guide for their Green Infrastructure Grant Program.

CURRENT INITIATIVES

The goal of DEP's GI Program is to reduce combined sewer overflows (CSOs) into the waterways of New York City by managing stormwater from impervious surfaces using green infrastructure practice. DEP selected priority areas based on CSO volume and frequency of CSO events, and works to retrofit City-owned streets, sidewalks and other public property (such as schools, parks and municipal buildings) and incentivize GI retrofits on private property.

DEP designs, constructs and maintains GI practices called "rain gardens" in the sidewalk. These account for over 90% of GI projects constructed to date. On public property, the DEP and partner agencies have installed numerous GI assets around the City. Typical on-site GI types include bioretention practices (such as rain gardens or swales), subsurface detention/retention systems, synthetic turf fields with infiltration capacity, green roofs, or permeable pavement.

DEP also provides funding for the design and construction of GI practices on private property. Around Newtown Creek (a priority watershed) the agency is actively pursuing several on-site GI retrofit opportunities.

Citywide, since 2011, DEP and its partner agencies have built nearly 4,000 individual GI practices, managing stormwater from more than 450 acres of impervious surfaces.

FUTURE EFFORTS

DEP and partner agencies are ramping up their efforts to identify GI opportunities on public property. This is being carried out through strategic watershed level planning and opportunity analyses, growing interagency partnerships, and new, flexible GI designs. DEP will continue to advance the nearly 200 public property retrofits currently in the design pipeline with partners such as the Department of Education, NYC Housing Authority, and the Parks Department. Concurrently, DEP is collaborating with the Department of Design and Construction to incorporate GI in public building upgrades where feasible and cost effective.

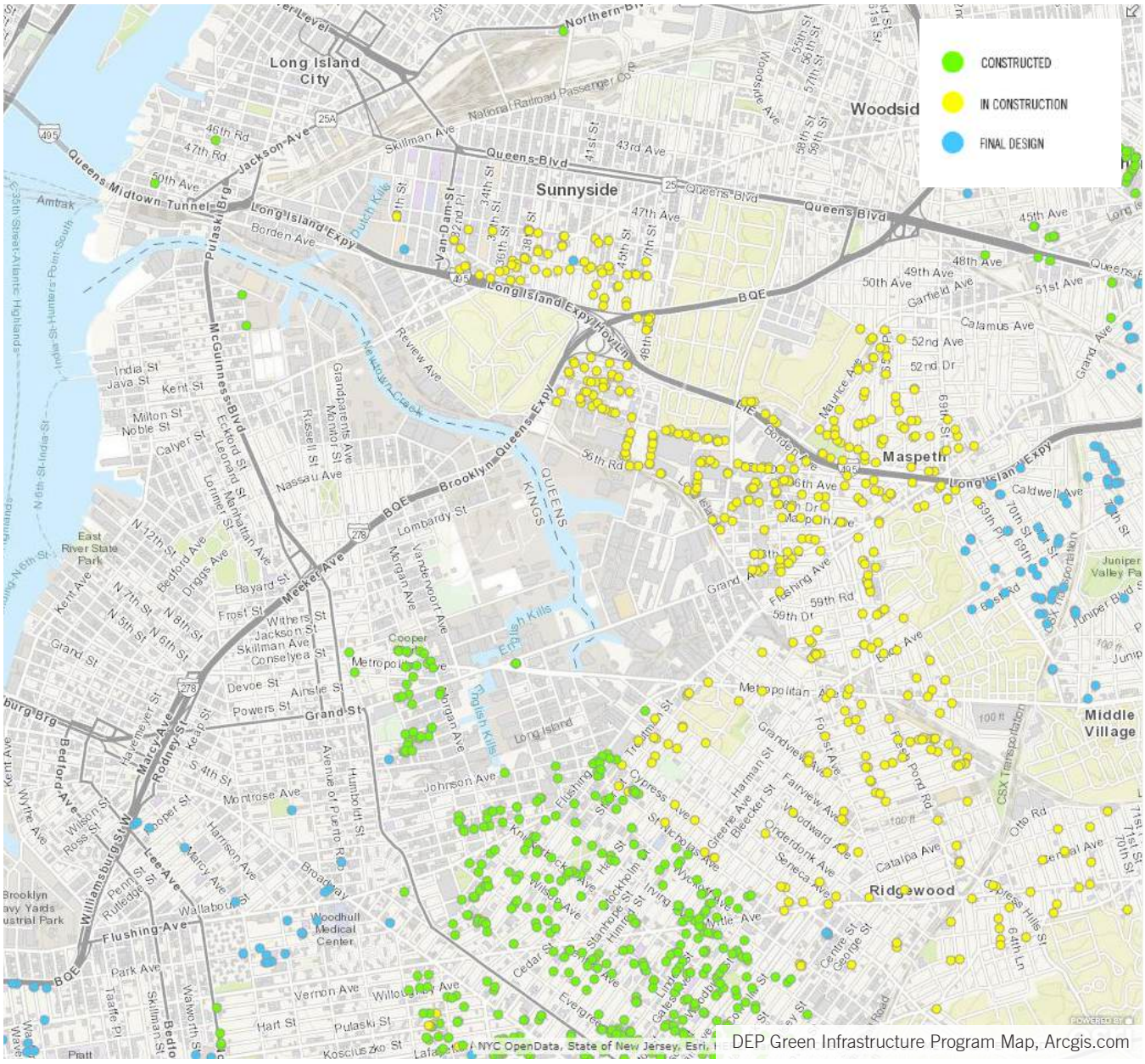
Private property continues to present an exciting opportunity for GI retrofits. DEP is laying the groundwork for scaling up GI on private property with innovative incentives built on best practices from other cities, outreach with local communities and industry experts, and spatial and engineering analyses to estimate the private stormwater market in NYC.

DEP GREEN INFRASTRUCTURE GRANT

DEP offers green infrastructure grant funding for private property owners in New York City. The goal of the Green Infrastructure Grant Program is to incentivize private property owners to retrofit their buildings, roofs, parking lots and other "hardscaped" areas with green infrastructure to manage stormwater runoff during typical rain events. Eligible projects include rain gardens, green roofs, porous pavement and rainwater harvesting on private property in New York City. If selected, DEP will provide funds for the design and construction of the green infrastructure system. Grant funding is available citywide; however, it cannot be used to meet any regulatory requirements a property is subject to. For more information visit, http://www.nyc.gov/dep/gigrantprogram

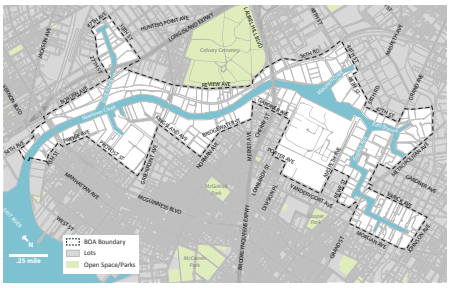
ELIGIBILITY CRITERIA:

- ☑ Project must manage 1" of stormwater runoff from the contributing impervious area.
- ☑ Project must be cost-effective and greater than $35,000
- ☑ Property must be privately owned and within New York City
- ☑ Grantee must provide 20 years of maintenance for all green infrastructure funded by DEP.
- ☑ Grantee must be willing to sign the funding agreement and declaration of restrictive covenant as is



DEP Green Infrastructure Program Map, Arcgis.com

Brownfield Opportunity Areas



Located at the heart of New York City, Newtown Creek houses industries vital to the regional economy. Above all, though, it is a thoroughly over-developed place. Every square foot has been built on, graded, or modified over a century of industrial use, and despite the national trend of industrial contractions, very little land lies unused within the Creek's industrial and commercial corridors.

The Newtown Creek Brownfield Opportunity Area (BOA) is designed to examine the potential in the Creek's watershed for commercial and industrial enterprises. The BOA was completed in 2012 and was sponsored by a partnership of three non-profit groups, the Greenpoint Manufacturing & Design Center (GMDC), Riverkeeper, and Newtown Creek Alliance (NCA) (together, the "Partners"). With a vested interest in the future of the Creek and the surrounding neighborhood, the Partners set forth to develop a comprehensive community planning framework for the area. This community-based planning effort focused on putting brownfield sites on Newtown Creek back to productive use and bringing quality industrial jobs to the area. Where key sites are currently under utilized, the intent was to maximize their economic potential so that this former industrial economic powerhouse can once again energize the local and regional economy. For more information, the full BOA document can be downloaded here: **http://bit.ly/2H2emuA**

We include key findings from the BOA below in our effort to utilize this Vision Plan as a means to consolidate existing visioning efforts for Newtown Creek:

1. **Work with MTA and LIRR to explore relocation of LIRR Team Freight Yard from the Arch Street Yard to the LIRR Wheelspur site to create a modern intermodal freight link.**
Wheelspur Yard represents an extraordinary opportunity to develop intermodal freight connections, while piloting urban design and sustainability approaches that could serve as models for the rest of the Creek, particularly green infrastructure and public access. Given the scale of the Superfund cleanup that EPA will undertake over the next two decades, the new yard could also serve a critical role in the efficient transport of contaminated material to permanent disposal facilities.

2. **Work with existing and prospective business and property owners to plan, finance, permit, and construct new bulkheads for maritime freight use.**
The condition of bulkheads along the Creek remains a significant obstacle to the modernization of industrial activities and a hindrance to maritime freight utilization for existing businesses. A more comprehensive study of targeted bulkheads by a marine engineering firm is required to set in place a mid-range strategy for redesigning, financing, permitting and rebuilding bulkheads.

3. **Pilot habitat restoration, best stormwater management practices, and bioremediation efforts.**
A long-term wetland restoration plan should be created for Newtown Creek that anticipates both the compensatory mitigation needs of industrial businesses as well as the Clean Water Act goals for water quality and ecological integrity. Given the realities of dredging involved with the Superfund cleanup process and CSO Long Term Control Plan, creative nearer-term opportunities for Dutch Kills, small sites and "floating wetlands" should be explored.

4. **Convene analysis of long-range infrastructure needs along Newtown Creek to facilitate 21st century industrial uses.**
Newtown Creek is hampered by deteriorated, neglected, or obsolete infrastructure that undermines and restricts business activity and redevelopment. In addition to bulkhead analysis for future maritime freight uses, a more comprehensive analysis of Creek-area sewers, bridges, streets and sidewalks, power grid and rail infrastructure is required. This analysis should address the needs of existing businesses while anticipating the needs of future industrial users.

5. **Pilot Street End Redevelopment as Public Access.**
A workgroup of relevant agencies, community stakeholders and design practitioners should be convened to prioritize conversion of street ends along the Creek into bioremediation habitat sites with appropriate public access.

NORTH BROOKLYN BOA PLAN

In addition to the 2012 NCA sponsored Newtown Creek BOA, Evergreen is completing a BOA Plan for North Brooklyn that explores and makes recommendations on policies and redevelopment strategies that could make industrial uses more feasible and profitable in the community. See the May 2017 Key Findings and Recommendations here: **http://bit.ly/2H44ctw**

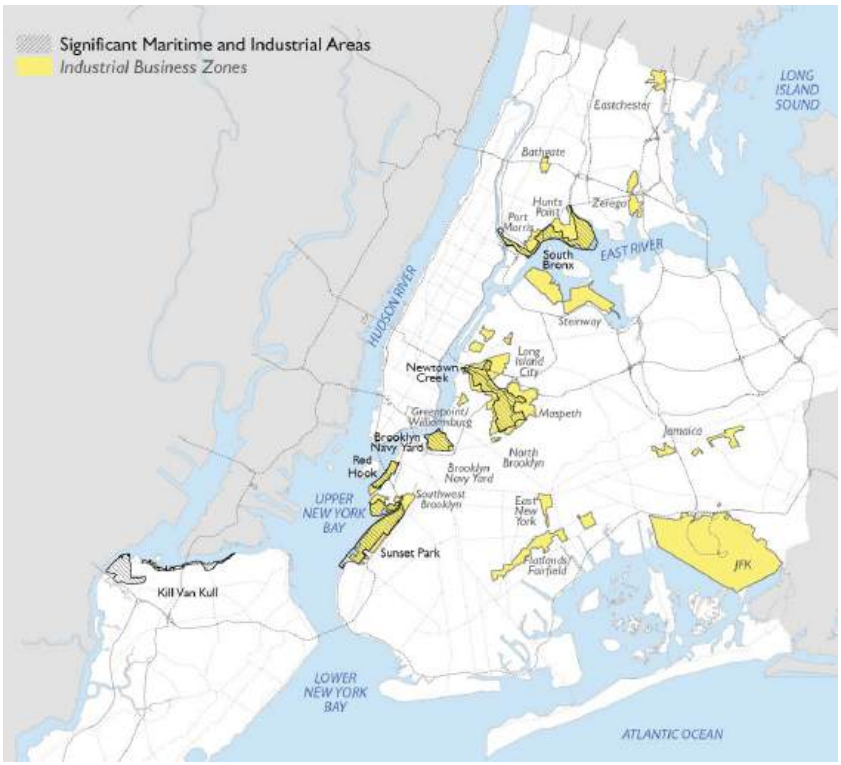
Industrial Business Zones

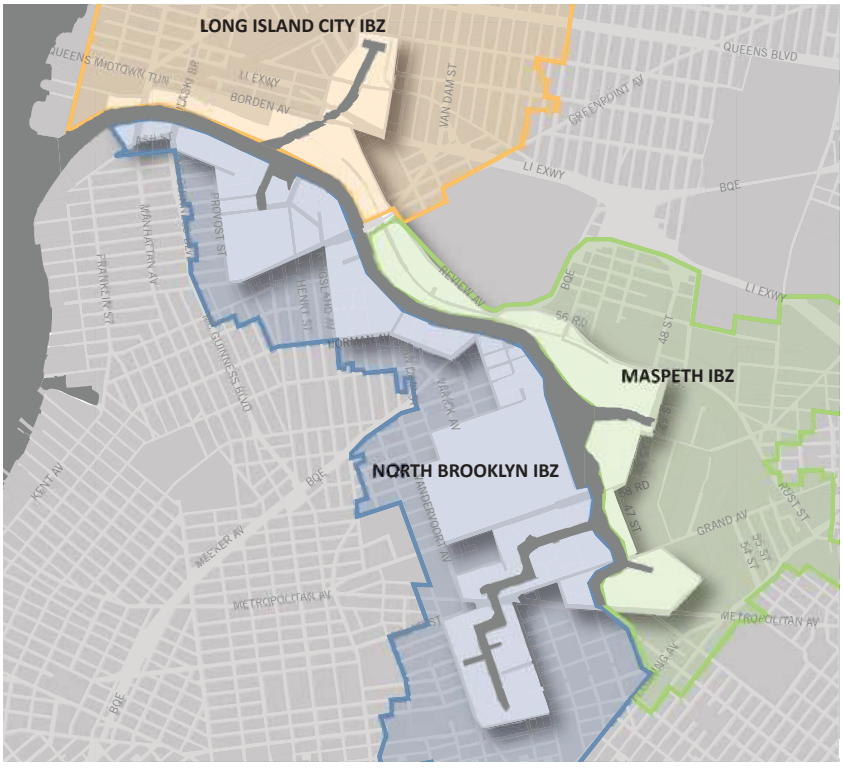
New York City has designated 16 manufacturing areas as Industrial Business Zones (IBZs), with an aim toward protecting and enhancing the City's industrial sector. The Newtown Creek BOA lies entirely within three of these zones: Long Island City, Maspeth, and North Brooklyn. IBZs feature a number of benefits for companies located within their boundaries. These benefits offer incentives for retention and growth.

Companies within the Newtown Creek BOA utilize a number of these incentive programs. While some incentives are tied to the IBZ, the majority are available to industrial companies located in most parts of the City. The Long Island City IBZ and Maspeth IBZ offer industrial business solutions through the Queens Business Outreach Center, while the North Brooklyn IBZ is run by Evergreen.

As with any assessment of land use changes, open space enhancements, or contaminant remediation, reviewing the community vision for a restored Newtown Creek must take into consideration these IBZs and the policies the City has in place supporting them. As noted at the outset of this report, successful management of an IBZ is not inconsistent with the resilience, restoration, or remediation goals of the community for the waterway. In fact, IBZ development and growth can – and should – track with these opportunities.

Enhanced open spaces and waterway access benefit the community and the customers and workers IBZs rely on; green roofs and stormwater best management practices help flood control and pollution abatement and provide energy efficiency and air quality benefits for commercial and industrial facilities; softer edges and restored wetlands return the waterway to the public while also buffering waterfront parcels from storm surges and coastal erosion. By working together, the community and the IBZs can ensure a remediated, restored, open-access, and resilient Newtown Creek.





A Billion Oysters

Oyster restoration can play a major role in building Newtown Creek's collaborative community.

Billion Oyster Project (BOP) is an ecosystem restoration and education project aimed at restoring one billion live oysters to New York Harbor and engaging thousands of youth through restoration-based STEM education programs. BOP has collaborated with over one hundred schools to provide authentic, place-based science and math lessons through the lens of oyster restoration.

Students at the New York Harbor School have been participating in the investigation and practice of oyster restoration in New York Harbor since 2005. Learning to scuba dive, culture oyster larvae, operate and maintain vessels, design and build underwater equipment, and conduct long-term ecosystem monitoring – all in the urban waters of New York City. Over the first few years of the program, over twenty five million oysters have been deployed throughout the Harbor.

Billion Oyster Project's vision for Newtown Creek is a waterway completely free of harmful industrial chemicals and raw sewage for the local community to swim, fish, experience, and enjoy in countless ways. They envision a future Creek with boundless access and unique learning opportunities around every bend, educational wet lab classrooms for teachers to bring the wonders of their local ecology into the school day and an educational center supporting interdisciplinary public programs focusing on the community's historic challenges.

The issues surrounding the health of the Creek require a collaborative community of local stewards: organizations, universities, students and local residents, working alongside elected officials and government agencies to solve the urban waterfront challenges of tomorrow. Oyster restoration can play a major role in building Newtown Creek's collaborative community. Working together to restore native keystone species, connecting and educating local residents, and providing local outdoor classroom opportunities for local youth – all within the backdrop of Newtown Creek's sordid industrial history – repairs habitat and more, a significant community asset.

BOP BY THE NUMBERS

Oysters Planted in NY Harbor
22 Million

Shell Recycled
700,000 pounds

Restaurants Collecting Shells
70

Partnering Schools
107

High School Students Engaged
1,215

Middle School Students Engaged
5,340

Volunteers Engaged
921

** As of October 2017*

A Thousand Acres of Wetland

Marsh grasses, fed twice daily by the tides, once extended throughout all the waterways of greater New York-New Jersey harbor. Before the industrialization of Newtown Creek began in earnest at the turn of the 18th century, one historian estimated as much as 1,200 acres of salt marsh within the Creek's watershed alone – wetlands that were almost 150% larger than Manhattan's Central Park. By the year 2000, Newtown Creek failed to support a single blade of these original native grasses. Yet, returning intertidal salt marsh to this now walled-in urban waterway is being pursued as a collaborative effort through multiple community-driven projects and one pilot study by the City.

In 2010, a team of researchers from LaGuardia Community College proposed a plan to design and suspend frames, or large planters, along the Creek's bulkheads to allow salt marsh plants an area to grow within the intertidal zone, as they would naturally on a sloping shore. The project was supported during a community granting process and later received environmental benefits awards from a multi-million-dollar fund established by NYS Department of Environmental Conservation and administered by the City Parks Foundation. Working with Outside NY, the project has installed a number of the "Wetland Frames" along various bulkheads owned by the City's Department of Environmental Protection and Department of Sanitation. Today, the grasses are planted, monitored and maintained by students from LaGuardia with support from the Newtown Creek Alliance and North Brooklyn Boat Club.

Recognizing the potential for salt marsh restoration in Newtown Creek, the DEP also installed a 500-square foot marsh at the head-end of Dutch Kills in 2014. By adding a few feet of clean sand to a shallow area outside the navigational channel, the agency was able to test the viability of large-scale restoration in one of the most challenged areas, from a water-quality perspective, of the entire Creek. The grasses have survived three seasons in this back corner of Dutch Kills and look very much as if they will continue to hang on in this challenging environment. The City plans to expand the pilot in 2018 to other shorelines in Dutch Kills (closer to the Hunters Point Avenue Bridge). Given the history of environmental abuse and neglect toward natural habitats, these initial investments are pivotal moments in the long-term restoration of Newtown Creek.

Dutch Kills wetland pilot

Bulkhead wetland frames pilot

Ribbed Mussels

One of the key components of a salt-marsh is the symbiotic relationship between the low-marsh grasses (e.g., Spartina alterniflora) and ribbed mussels (Geukensia demissa) that populate near the stems of the plants. The mussels are able to transfer nitrogen from the water into the plant roots, preventing algal blooms and driving growth of the grasses, while also taking advantage of shade and growing space afforded by the grasses. Excessive levels of nitrogen and bacteria in the Creek remain a pressing water quality issue, even more reason for increasing salt marsh habitat and ribbed mussel populations.

Superfund Considerations

A thorough cleanup of the Creek, including the removal of contaminated sediments and prevention of ongoing and future pollution, is in many ways the most important aspect of this Vision. At the time of this report, the EPA has not reached the point in its Superfund process where a final clean-up action plan (called the Record of Decision, or ROD) is locked in; this leaves a number of unknowns regarding the extent and timing of remediation. During this critical planning period, two key considerations for Superfund remediation were raised by the community at visioning sessions held throughout 2017: the need to plan for the entire system's end goals, and the vital role of ecosystem restoration efforts.

EPA dredging in Gowanus

INTEGRATED WATERFRONTS AND WATERSHEDS

If the remediation of the Gowanus Canal – another Superfund waterway located a few miles from the Creek – is any indication, remediation will involve in-water dredging, bulkhead reconstruction, groundwater pumping, and the capture of stormwater and combined sewer discharges. As plans are developed for each of these contaminant control systems, the EPA and the community should keep in mind the recommendations of this Vision. Dredging and capping technologies should be designed to support new oyster reefs and rebuilt wetlands. Where new bulkheads are required or changes to the water's edge are unavoidable, setting back sheet-piles allows for softer waterfront edges that support ecosystems while providing flooding and storm surge protection. Stormwater control is a priority and should be comprehensively addressed with green infrastructure, large-scale grey infrastructure, and water conservation and efficiency programs throughout the watershed. By planning with an eye toward what the Creek should be - remediated and resilient, with restored ecosystems and space for recreation - the EPA can ensure that the Superfund remedy is seamlessly integrated with the needs of the community.

NATURAL RESOURCES DAMAGES

For the restoration goals itemized throughout this Vision Report, Superfund offers a vital tool for both community activism and government agency leadership. The Natural Resource Damage Assessment (NRDA) process is where a group of federal and state agencies (collectively known as the "Trustees") evaluate the impacts of oil spills and hazardous material contamination on natural resources. The Trustees on Newtown Creek include NOAA, NYS Department of Environmental Conservation and the U.S. Fish and Wildlife Service.

By identifying the extent of ecological injuries and the best methods for restoring them, the Trustees ultimately develop a systemwide restoration plan. Many of the projects in this report can and should be considered by the Trustees for inclusion in any future Creek restoration plan. While the assessment of the extent of injuries is ongoing – including impacts on human consumption (of fish, for example) as well as recreational values (like birdwatching or fishing) – the Trustees have already determined that contaminants in the Creek have severely impaired the quality of surface water and habitat as well as created health and reproductive risks for the Creek's fish, birds, and shellfish.

While the NRDA process is aligned with Superfund, it is often not finalized until well after remediation (clean-up) efforts have begun. The community's clear preference for Newtown Creek is that these restoration activities run simultaneously; there is no need to wait until the Superfund remediation is completed to begin planning for a restored ecosystem. For example, work restoring specific shoreline edges or waterfront parks can be part of the NRDA process and begin more quickly.

NRDA Site, Old Place Creek, Staten Island

SWIM Stewardship

A CITIZEN CHECK LIST FOR STORMWATER MANAGEMENT

As residents of New York City, we each have a vital role to play in mitigating (i.e., reducing, stopping, or abating) combined sewer system discharges and overflows ("CSOs"). There are two major contributors to CSOs: sewage and stormwater. Residents of NYC can easily make a difference for both sources: To reduce the stormwater that runs off your property, consider installing or advocating for more GI on your home or in your neighborhood; this will keep water out of the sewers and make the system less likely to overflow into Newtown Creek. To reduce the sewage that may overflow into local waterways during a rain event, simple water conservation strategies can help save your waterfront; consider not washing dishes or doing laundry during storms.

See the Green Infrastructure Guide, developed by Riverkeeper and the NYC Soil and Water Conservation District for more information and resources at **https://www.swimmablenyc.org/**

CONSERVE WATER DURING RAINSTORMS

In combined sewer systems, sewage and stormwater runoff inundate the sewer system when it is raining. If you cannot do anything on your parcel to capture rainwater, you can always help by conserving water inside your home, business, or facility. Wait to shower, clean, do laundry, or wash dishes until the storm passes. Or, consider not flushing your toilet until a storm has passed.

TAKE CARE OF STREET TREES

Street trees are green infrastructure! When you are taking care of your sidewalk, take care of your trees – the soil that the tree bed sits within manages stormwater! In dense urban environments, however, these "tree pits" are often choked and clogged; people and vehicles can compact the soil and litter can cause the soil to turn to useless dirt. A little street tree care can go a long way to providing more stormwater management and a healthier tree canopy.

KEEP LITTER OUT OF STREETS

Litter on streets and sidewalks – when it rains – is driven by stormwater runoff along the curb and into the sewer system. From there, our garbage ends up in waterways where it is a hazard to the ecosystem, public health, and coastal businesses. By keeping your block clean, sweeping up trash and pet waste, and properly throwing away garbage, you directly improve local water health and safety.

MAKE NEWTOWN CREEK A PRIORITY FOR YOUR ELECTED OFFICIALS AND CITY AGENCIES

Clean waters start with clean streets, water-smart citizens, and investments in green infrastructure for our roads, buildings, and yards. To ensure that the right investments are made, and that communities coalesce behind clean water stewardship, help ensure that Newtown Creek is a priority for your community board (see map), council member, and city agencies.

HOME IMPROVEMENTS

Much of the watershed that drains to Newtown Creek is made up of neighborhoods in Queens and Brooklyn dominated by residential land use – meaning houses and apartment buildings. To protect local water quality, and to ensure that your family, friends and neighbors have access to clean waterfronts, take steps at home to capture stormwater: rain barrels, green roofs, and down spout planters are all readily adaptable to NYC, if you have the permission of your building owner.

The Road Ahead

The majority of this report focuses mainly on physical improvements to Newtown Creek, its shorelines and adjacent areas. While it would be easy to say that the next step here is to break ground on these improvements, this contaminated, industrial, sewage-burdened waterway has never had solutions that simple.

Thus, since our first meeting with the public, the biggest question we've been asked is how we could make any vision for the Creek a reality – let alone a vision that so significantly changes how almost every inch of the Creek is shaped and functions.

Simply, the answer is to work incrementally. By working the Creek at small scales, reach by reach – we will eventually be implementing system solutions to the Creek-wide issues limiting this impaired waterway. That's the way to execute on this type of blueprint. The vision document was intended to start discussions and provides the community with a framework to work with agencies, industries, developers, planners, and elected officials – shaping together what Newtown Creek will look like for years to come.

In many ways, this is an unavoidable next step; with long planning horizons for the City's Long Term Control Plans (decades) and the EPA's Superfund decision (years), many of the projects and proposals contained in this report are time-barred from execution. Many, though, are not; it is up to the community to ensure that upland rezoning efforts, private property retrofits, and planning commissions do what they can, when they can, to carry out this Vision.

Newtown Creek Alliance and Riverkeeper, as advocates for the Creek and its surrounding communities, recognize the challenges inherent in carrying out this Vision over the long term. We have no plans to leave, and will be there with the community as final decisions are developed at the City, state, and federal levels about the future of the Creek, striving to ensure that this Vision, and the priorities included herein, are met.

We are determined, however, to make this community-driven vision a community-driven success – and will therefore need your help. As we work to preserve the Creek's industrial core, enhance coastal climate resiliency, restore marshes and wetlands, ensure the removal of all toxic contamination, and work to stop new and ongoing sources of Creek pollution. We envision a community water resource that is safe for recreation and an asset to the surrounding communities and industry. As we pursue these broader goals, though, we have a number of specific pathways and policies in mind.

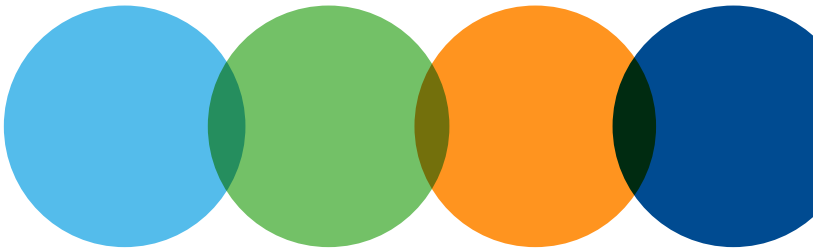
BETTER ENGAGEMENT WITH HEAD-OF-CREEK COMMUNITIES

Two boroughs, three community board districts, four city council districts and eight different neighborhoods border Newtown Creek. Each one has a different historical relationship and current connection to the waterway. While the tributaries furthest from the East River are the most impaired environmentally, the communities within these watersheds are unfortunately under-represented in cleanup conversations, such as the Superfund Community Advisory Group. Part of the issue is the size of these drainage areas and limited physical connection to the water.

Neighborhoods like Greenpoint and Long Island City have the most access to Newtown Creek; yet most of their combined sewer overflow (CSOs) pollution drains to the East River. Bushwick and Ridgewood on the other hand, have little to no physical connection to the Creek, but flush millions of gallons of untreated sewage into English Kills and East Branch every year. Building connections, awareness, and creating a more diverse Creek-Wide community, is vital to drive large-scale and equitable improvements for the places most in need and affected.

STRONGER LEADERSHIP FROM ELECTED OFFICIALS

While many of the City, state, and federal elected officials that represent Newtown Creek are dependably supportive of the cleanup efforts, there is a lack of recognized leadership by any one office. Though the geography of the Creek, four miles long, touched by numerous districts, dividing two boroughs, plays a role in the challenges faced by each local leader working to champion the Creek, there is room for a central voice to unify and amplify the priorities of local leaders. We ultimately look to the leadership of the Mayor, the Governor and our Congressional offices to coordinate, oversee, and promote the fate of the Creek.



We ask the Mayor's Office to understand and hear the community asking for increased capture in Newtown Creek, more capture than is offered by the current LTCP. We ask that the Mayor's Office join us in asking for reasonable time-frames to realize the LTCP. We ask is twenty five years actually a reasonable time-frame for the communities of Newtown Creek, that have long dealt with a heavily polluted water body, to wait for safe water? And while we wait for large infrastructure projects to be built, we ask that policy does not blanket issues, but solves them, with strong incentives for Green Infrastructure, and a Department of Environmental Protection that reaches all of its Green Infrastructure Goals.

COORDINATION AND PARTNERSHIPS

As with neighborhoods and elected officials, there is no shortage of agencies connected to Newtown Creek. We, as community advocates, and community members, need various agencies to not only come together to communicate effectively, but also to strategize and partner on projects that are visionary in nature but complicated in reality. This could take many forms: NYC Department of Transportations' Brooklyn and Queens Borough offices coordinating on an inter-borough transportation plan that would address traffic patterns and modes, issues of accessibility, and safety in a holistic and encompassing manner.

The Army Corps of Engineers along with New York City Department of Small Business Services, Department of City Planning, Department of Environmental Protection, and Department of Environmental Conservation could study bulkhead use and needs to inform Superfund on remedial actions that address the water's edge and future design potentials and maritime use. These are just two suggestions of many that would lead to big steps forward for viable and feasible changes on the Creek. Agencies must take the initiative to collaborate, in the same way that we take the initiative to collaborate with all of them, in order to reach the full potential of their efforts.

NEW FUNDING SOURCES FOR ENVIRONMENTAL IMPROVEMENTS

The Natural Resources Damage Assessment (NRDA), a process for addressing environmental damages, works in conjunction with Superfund and provides a potential path in realizing some of the restoration focused ideas outlined here. Yet, current funding for other priority issues like stormwater capture, wastewater infrastructure, public access and open space are insufficient. An industrial building can be an asset to the environment, as well as the economy. The City's existing incentives must be utilized by those around the Creek, expanded and improved. Green Infrastructure projects not only capture needed stormwater, but also provide other co-benefits to improve the urban ecosystem, decrease urban heat island index, and increase resiliency. Most industry around Newtown Creek lies within the 100-year floodplain, and resilient industry recommendations ought to be policy requirements. New York, one of the wealthiest cities, in one of the world's wealthiest countries, needs stronger investments in our natural resources for all to enjoy.

COMMUNITY CHARACTER

Recognizing and planning for external development and real estate pressures that often accompany environmental cleanup is critical. Strong support from community organizations and elected officials to preserve the industrial and manufacturing zones that surround most of Newtown Creek while also protecting the environment and public will be vital in ensuring that restoration and remediation do not lead to unforeseen community impacts. By working together on these plans and projects, we can ensure that "resilience" doesn't just apply to climate-smart designs along the waterfront, but to the economies and social systems that presently live and work along the Creek.

If the community – from the neighborhoods around English Kills to the new residents of Long Island City – can coalesce around this Vision, if the elected officials can rally support and funding for these projects, if agencies and industries can commit to clean water and resilient coastlines, and if we can all accomplish this without sacrificing the cohesion of the Creek's human, ecological, and economic systems, we will have made this Vision a reality.

Sincerely,
Riverkeeper and Newtown Creek Alliance

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NY's clean water advocate

NCA
NEWTOWN CREEK ALLIANCE

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To everyone that sat down at the table to talk, or took a walk or a boat ride around the Creek, or invested their time to share their insight or their constituencies' priorities: community board members, elected officials, and all of the other individuals, agencies, and organizations we didn't have space to list here, thank you for your voices.

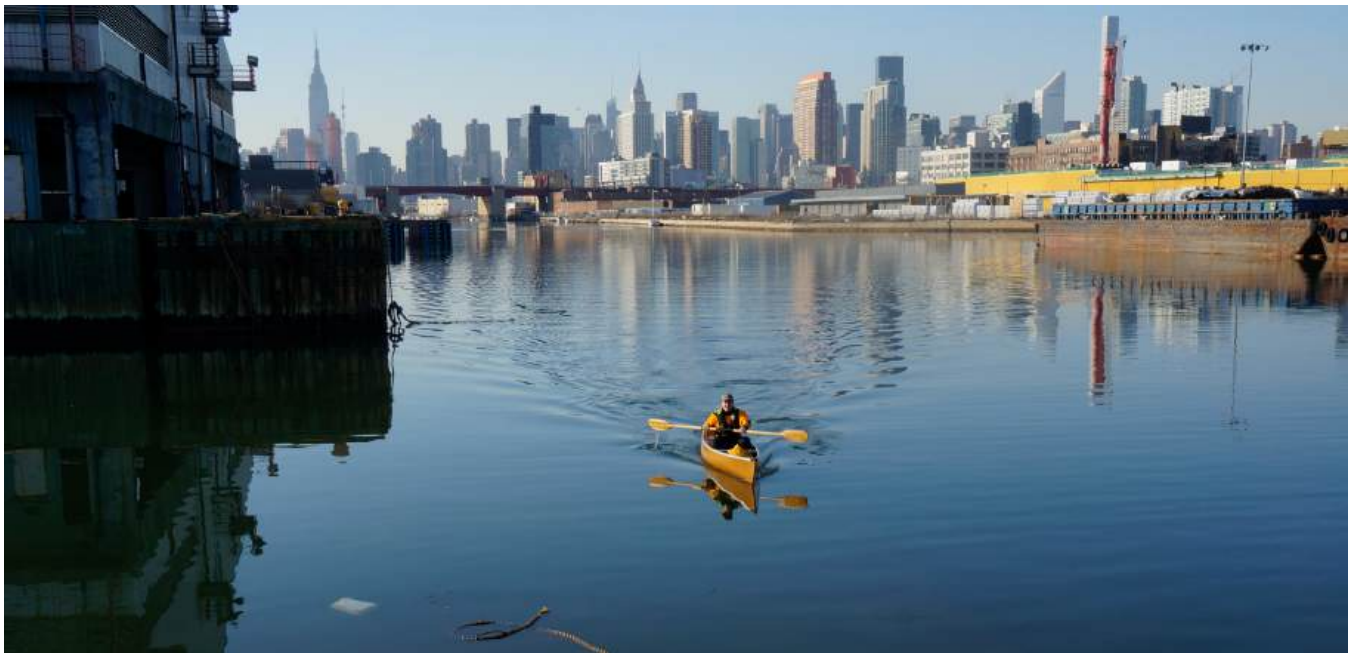
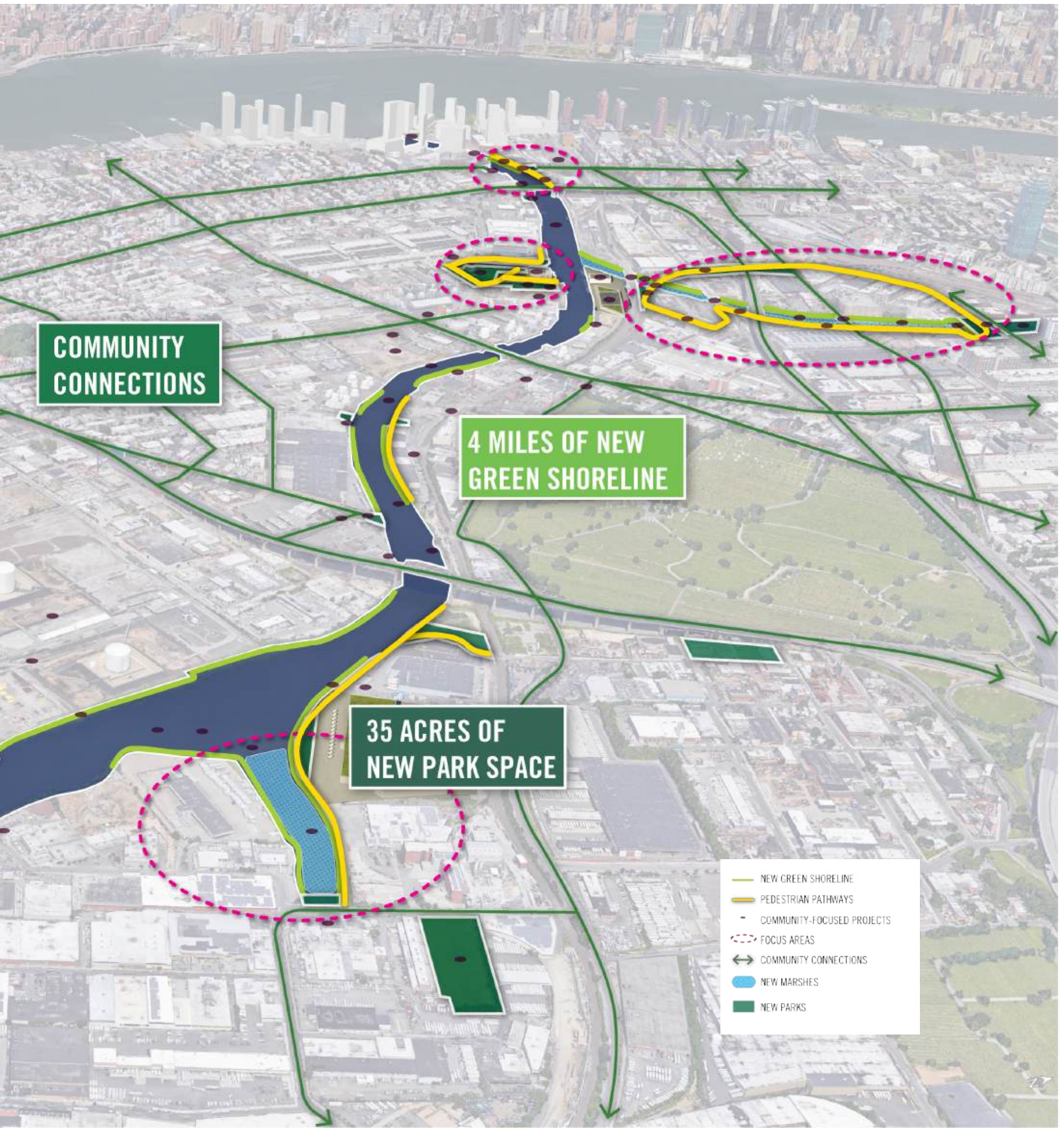


Photo Credits: Riverkeeper, Newtown Creek Alliance, Perkins+Will


NO MORE POLLUTION
PLEASE


85 COMMUNITY-FOCUSED PROJECTS
20 ACRES OF NEW MARSHES


COMMUNITY CONNECTIONS
4 MILES OF NEW GREEN SHORELINE
35 ACRES OF NEW PARK SPACE
NEW GREEN SHORELINE
PEDESTRIAN PATHWAYS
COMMUNITY-FOCUSED PROJECTS
FOCUS AREAS
COMMUNITY CONNECTIONS
NEW MARSHES
NEW PARKS

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