



A NEW LEAF

Revitalizing New York City's Aging Parks Infrastructure

A NEW LEAF is a publication of the Center for an Urban Future. Researched and written by John Surico. Edited by Eli Dvorkin and Jonathan Bowles. Additional research by Sheila Binesh, Myles Bonadie, Gail Hankin, Julia Hotz, Nicholas Hoynes, Leah Jacobson, Elsa Van Latum, Alexa Schatzmann, Naomi Sharp, Rania Siddique, Katherine Surko, Shiming Xiong, and Luke Zangerle. Designed by Rob Chabebe.

This study was made possible by the Stavros Niarchos Foundation.



The **Stavros Niarchos Foundation** is one of the world's leading private, international philanthropic organizations, making grants in the areas of arts and culture, education, health and sports, and social welfare. Since 1996, the Foundation has committed more than \$2.5 billion, through more than 4,000 grants to nonprofit organizations in 124 nations around the world.

The SNF funds organizations and projects, worldwide, that aim to achieve a broad, lasting and positive impact, for society at large, and exhibit strong leadership and sound management. The Foundation also supports projects that facilitate the formation of public-private partnerships as an effective means for serving public welfare.

Center for an Urban Future

Center for an Urban Future (CUF) is a leading New York City-based think tank that generates smart and sustainable public policies to reduce inequality, increase economic mobility, and grow the economy.

General operating support for the Center for an Urban Future has been provided by the Clark Foundation, the Bernard F. and Alva B. Gimbel Foundation, and the Altman Foundation. CUF is also grateful for support from Fisher Brothers for the Middle Class Jobs Project.

Executive Director: Jonathan Bowles

Policy Director: Matt A.V. Chaban

Managing Editor: Eli Dvorkin

Senior Researcher: Christian González-Rivera

Senior Fellow for Economic Opportunity: Tom Hilliard

Communications and Operations Manager:

Hayley Kaplan

Senior Fellow for Small Business and

Entrepreneurship: Judith Messina

Events and Operations Assistant: Angela Sabblah

Research Associate: Naomi Sharp

Visiting Fellow: John Surico

Board of Directors: Gifford Miller (Chairman), Michael Connor (Vice Chair), Max Neukirchen (Treasurer), John H. Alschuler, Margaret Anadu, Jonathan Bowles, Russell Dubner, Lisa Gomez, Jalak Jobanputra, Kyle Kimball, David Lebenstein, Eric S. Lee, Monisha Nariani, Andrew Reicher, John Siegal, Stephen Sigmund, Thomas Vecchione, Robert Zimmerman

Photos: *John Surico*

TABLE OF CONTENTS

INTRODUCTION	3
KEY FINDINGS	
INVISIBLE INFRASTRUCTURE	14
DRAINAGE SYSTEMS	
RETAINING WALLS	
WATERFRONT FACILITIES	
PATHWAYS	18
BRIDGES	
STAIRS	
STREETS, SIDEWALKS, AND PATHS	
BUILT FACILITIES	22
COMFORT STATIONS	
PLAYGROUNDS	
LANDSCAPE	25
HORTICULTURE	
FORESTRY	
MISSING MAINTENANCE	27
LOW PRIORITY	30
PIECEMEAL FUNDING	32
DATA DEFICIENCY	34
CAPITAL SLOWDOWN	36
TEN YEARS OF PARKS POLICY	38
LOOKING ELSEWHERE: SOLUTIONS FROM OTHER CITIES	40
RECOMMENDATIONS	43

A NEW LEAF

In a space-starved city built from stone, brick, and steel, parks function as essential public infrastructure. These vital green spaces provide cost-free leisure and recreation in every corner of New York City, strengthening the economic and physical health of communities and providing a backyard for millions of residents. With the city's population at an all-time high and record numbers of tourists, New York's parks and playgrounds are busier—and more crucial—than ever before.

But a significant share of the city's public parks are several decades old, years behind on basic maintenance, and increasingly at risk of infrastructure failures. The average city park is 73 years old. Roughly 40 percent of the city's pools were built before 1950, as were nearly half of the 53 recreation centers in parks citywide. Waterfront facilities in parks—piers, bulkheads, marinas, and docks—are, on average, 76 years old.

Despite all this, the average city park last saw a major renovation in 1997. According to the best available data, 20 percent of parks citywide have not undergone a major infrastructure upgrade in 25 years.¹ Meanwhile, for decades New York City has provided too little money for basic maintenance and too few staff—including plumbers, masons, and gardeners—to keep critical parks assets from deteriorating and mitigate problems before they grow.

Although the city's parks are not yet experiencing a full-blown maintenance crisis, serious cracks are showing. Many parks with old drainage systems experience flooding for days following a rain shower. Too many retaining walls in parks are near the end of their useful lifespan. More than 20 percent of inspected park bridges are seriously deteriorated. Just as years of underinvestment in New York's century-old subway system led to a transit crisis, the maintenance challenges at city parks could quickly get a lot worse if more isn't done to upgrade and maintain these aging assets.

To his credit, Mayor Bill de Blasio has taken some important steps to address these problems. Since 2014, the city has launched the Community Parks Initiative and Anchor Parks Initiative, directing hundreds of millions of dollars to improve chronically underfunded parks. The Parks Department is also overseeing the system's first-ever needs assessment, which will begin to document the specific capital needs of the city's more than 1,700 parks.

However, much more will need to be done to shore up the city's aging parks system. We estimate that the city will have to invest at least \$5.8 billion over the coming decade to address the system's infrastructure problems. This total only includes the known repair or replacement costs of existing infrastructure, not new structures or additions to parks.

This report identifies key elements of parks infrastructure most in need of revitalization, and provides a blueprint for bringing New York's parks system into the 21st century.

This report, funded by the Stavros Niarchos Foundation, offers a new level of detail about the infrastructure needs of New York City’s parks—including invisible infrastructure, pathways, built facilities, and landscape—and encompasses both well-known facilities like playgrounds and bathrooms, and lesser-recognized yet integral components, such as drainage systems and retaining walls. The report also advances more than a dozen practical recommendations for city officials, designed to address the infrastructure challenges facing the city’s parks.

Researched and written by the Center for an Urban Future, *A New Leaf* is the culmination of a year of reporting and analysis on the current state of the city’s parks system. It is informed by an extensive analysis of data from the Department of Parks and Recreation (DPR), and interviews with over 90 park officials, park volunteers, open space advocates, elected officials, community board members, landscape architects, and horticulture experts in New York and nationwide. Our research also greatly benefited from consultation with New Yorkers for Parks, a citywide research and advocacy organization championing quality open space.

To supplement our research, we also visited 65 parks citywide—from southeastern Queens to the northern reaches of the Bronx; in high-, middle-, and low-income communities; and of all sizes—to document the most persistent problems. In one day alone, six researchers captured conditions at 30 parks across all five boroughs: a systemwide snapshot of the needs of New York City’s parks system on any given day.

New York’s parks are now some of the most frequented in the world, with over 100 million visits annually. While reflective of New York’s growing prosperity, this historically high usage places an unprecedented burden on the city’s parks infrastructure, which shortens the natural lifespans of amenities and increases the demand for regular maintenance. This rising need takes a toll on a system in which the average park was built before World War II. Across all five boroughs, most parks are at least half a century old: the average Brooklyn park is 73 years old; the Bronx, 74; Manhattan, 86; Queens, 72; and Staten Island, 51. A quarter of New York’s parks are at least 84 years old, and one park in 10 was built before 1898.

Problems exacerbated by the age of the parks system are compounded by deferred maintenance and a lack of infrastructure upgrades, which means that aging parks often go decades without significant investment in both aboveground and below-grade infrastructure. Based on

this report’s analysis of historical records and capital projects data from the Parks Department, a city park saw its last major renovation, on average, in 1997. Citywide, 20 percent of parks have not undergone a major infrastructure upgrade in 25 years. That share is even higher for smaller parks: 34 percent of parks under one acre have gone at least two decades without significant capital work. Overall, at least 46 parks, triangles, and plazas in New York have not received significant capital investment in nearly a century. At least 5 of Brooklyn’s 411 parks saw their last major renovation in the 1980s. Nearly 70 percent of the parks in that borough were last renovated before 2000, while at least 39 Brooklyn parks haven’t received major capital work since opening, according to our analysis of the only available data—in eight cases, over 100 years ago. Queens has a total of at least 37 parks that are long overdue for revitalization, including at least six that haven’t undergone a major renovation for over 100 years, and 31 for over 50 years. Manhattan has at least six parks that haven’t been upgraded significantly in more than 100

years, and at least nine for over 50 years. Staten Island has at least seven parks that haven’t received any major upgrades for over 50 years.

Although some of these parks are likely to have received small-scale investments over the years, our research found no existing records of substantial renovations or upgrades in the Parks

Department’s historical records, records of capital spending, or news reports. For example, Newtown Barge Playground in Greenpoint hasn’t received a major upgrade since 1972. Beach Channel Park, a 12-acre strip of waterfront land in the Rockaways, hasn’t been renovated since it was added to the parks system in 1930.

The numbers are particularly notable on the neighborhood level. In Woodside, 45 percent of parks haven’t received a major renovation since 1993. In Bushwick, the share is even higher, at 67 percent; in Riverdale, it’s 71 percent. The result is that hundreds of the city’s public parks are facing serious infrastructure challenges, whether from decaying drainage systems and crumbling bridges or leaking recreation centers and struggling horticulture.

Perhaps the most pressing infrastructure need is invisible: damaged or inadequate drainage systems below the ground and underwater that are hidden from view. Cracking, blocked, and insufficient drainage systems—the catch basins, sewers, and wastewater lines responsible for bringing water in and out of a park—impose one of the most challenging burdens on parks citywide. This is in part

Average Age and Year of Last Major Upgrade for New York City’s Public Parks

	Bronx	Brooklyn	Manhattan	Queens	Staten Island
Total Parks	291	411	282	356	145
Average Age	74	73	86	72	51
Avg. Year Of Last Major Upgrade	1998	1998	2002	1992	1995

Source: Center for an Urban Future analysis of public data made available by the Department of Parks and Recreation. Not all parks are documented in the available data.

a function of age: in fact, many parks drainage systems still use clay pipes from the mid-20th century.

Today, many New York City parks can hardly handle the slightest downpour. Out of the 65 parks we surveyed, nearly half had notable drainage issues—more than two days after the last rain shower—including submerged pathways and flooded areas. At Forest Park in Queens, for example, multiple catch basins are collapsed, and several roads and paths flood every time in rains. Almost every park administrator we interviewed cited poor drainage as a major problem for the city’s parks. “We really struggle with drains,” says Susan Donoghue, administrator of Prospect Park and president of the Prospect Park Alliance. “We have incredible flooding, rivers that are forming in grassy areas, where there’s supposed to be turf. Our drains are old and broken and need to be fixed. It’s debilitating, and we can’t keep up.”

Of equal concern are the parks system’s retaining walls: the vertical structures that hold up hundreds of parks citywide, preventing landslides and forestalling erosion. Often built at the park’s inception and labor intensive to maintain, many retaining walls in parks are nearing the end of their lifespans and few had been comprehensively inspected until just the past year. For those walls that have been assessed, the price tag is high; recent reconstruction of retaining walls and seawalls at just eight parks citywide cost over \$20 million. Some, like the crumbling 160-year-old wall holding up Fort Greene Park, could cost far more. “Virtually every retaining wall you see has a crack in it,” says one Parks Department official, who spoke with us on the condition of anonymity. “It’s a safety issue.”

The Parks Department is also responsible for 148 miles of coastline, including beaches, marinas, and docks—properties that are extremely expensive to maintain, yet integral to the health of the city’s coastline. However, due to rising costs, growing usage, and decades’ worth of deferred maintenance, the city’s piers, bulkheads, beaches, and marinas are increasingly vulnerable, leading to several recent collapses.

The waterfront facilities maintained by the Parks

Department are 76 years old, on average, which is a highly advanced age for infrastructure that takes constant abuse from water and weather. According to the city’s most recent Asset Information Management System (AIMS) report, which tracks the condition and maintenance schedules for capital assets with a replacement cost of at least \$10 million, the recommended maintenance needs for the Parks Department’s waterfront facilities was just \$4.3 million in FY 2016—a number that barely captures a fraction of what the coastline demands. By comparison, reconstruction of the piers at the World’s Fair Marina in Queens, which had to be shut down due to damage from Sandy and long overdue maintenance, could ultimately cost more than \$36 million. Experts agree that dozens of piers, seawalls, and bulkheads are likely to be in similar condition, but have not been inspected.

Park pathways—the roads, walking trails, sidewalks, and bridges that crisscross parkland—pose similar concerns due to age and wear, especially the city’s numerous park bridges. Many date to a park’s initial opening, with one in five inspected park bridges found to be seriously deteriorated. “Bridges are a big problem,” says one Parks Department official. “Several bridges were built during the 1930s and 1960s, and weren’t inspected until recently. They went under the radar. Because they weren’t in the system, some bridges weren’t regularly inspected.” According to the 2016 annual bridge survey by the Department of Transportation (DOT), 20.8 percent of all bridges operated in conjunction with the Parks Department received a rating below 4, which denotes “serious deterioration, or not functioning as originally designed.”² One bridge—a pedestrian bridge in Flushing Meadows Corona Park on the south side of Willow Lake—received a 1 for its condition, meaning “potentially hazardous.”

Built facilities in city parks, especially park bathrooms, also pose significant infrastructure challenges. The structures are often as old as a park, leaving them highly susceptible to gradual deterioration. In other cases, a lack of modern plumbing means that bathrooms haven’t been used in years. Our researchers observed issues at nearly

A note on the data

In attempting to develop the most comprehensive snapshot possible of parks infrastructure needs and spending, our researchers encountered significant record-keeping gaps and a lack of historical data. Despite these limitations, the Parks Department was immensely helpful in our research. After speaking extensively with members of the agency’s staff to guide our methodology, our researchers analyzed every historical record available through the Parks Department’s website and cross-referenced each listed park with records of capital work dating back to 1996, as provided to us by the Parks Department. Although this approach is necessarily limited by longstanding gaps in Parks Department records, as well as some very recent projects that were not part of the dataset, the result is the most expansive portrait to date of the age, history, and needs of the city’s century-old parks system.

Parks Department Recommended Maintenance Needs, 2006–2017



Source: Office of Management and Budget, Asset Information Management Systems Reports.

half of the parks we surveyed citywide, including flooding, broken fixtures, or nonfunctional toilets. Many of the comfort stations surveyed were closed entirely.

Unlike many other components of the parks system, this report finds playgrounds to be in a much-improved state of repair. But many residents and neighborhood advocates in low- and middle-income communities say that their playgrounds too often feature broken or decaying equipment and lack the modern play surfaces and structures of better-funded parks. “Thomas Jefferson Park had one of the highest playground injury rates in the city,” says Marie Winfield, founder of Friends of Thomas Jefferson Park and a former member of Manhattan Community Board 11’s parks committee, in East Harlem. “Harlem River Park is another one. It’s just general disrepair—things that are broken with the playgrounds. For the rest of the smaller parks, it’s the same sorts of issues.” Our data analysis finds that 63 of the city’s playgrounds have not received major capital investment in over 50 years. This pattern is especially prevalent in Queens, where approximately 25 of the borough’s 66 listed playgrounds saw their last major renovation in the 1960s or earlier, according to our analysis of the only available records.

Nearly half of the city’s DPR-operated recreation centers were built prior to 1950, resulting in frequent roof leaks, broken HVAC systems, and chronic plumbing and electrical problems.³ Likewise, 40 percent of park pools were built in the 1930s, all of which—aside from McCarren Park Pool, which is still undergoing restoration work—saw their last major renovation in the 1980s.⁴

In addition to various built structures, the city’s diverse park landscapes—including horticulture, natural areas, and trees—face serious infrastructure challenges of their

own. Our survey identified horticultural problems, such as dead plantings or rampant weeds, at over 35 percent of the 65 parks visited. The result is that many parks lack anything but the most minimal plantings—and even those are a struggle to maintain.

The challenges facing parks infrastructure did not appear overnight. Instead, they are the result of underinvestment in repair and maintenance over the course of decades and a system that makes it uniquely difficult to prioritize infrastructure when compared to other cities. Our research finds five key drivers of the parks system’s infrastructure problems, which will have to be addressed in order to make lasting progress.

Maintenance is seriously insufficient, leading to decay and collapse of parks infrastructure.

For decades, New York City has underinvested in the basic upkeep and maintenance of its parks, and this maintenance neglect has contributed to larger and larger infrastructure problems. In Flushing Meadows Corona Park, for example, infrastructure built for the World’s Fair in 1964—including the Passerelle Pedestrian Bridge and the World’s Fair Marina—went decades without systematic assessment or repair, leading to the need for total reconstruction. The same is true for parks assets citywide, whether it’s a damaged drainage system that relies on clay pipes and results in extensive water damage, or a pier that collapses into the river before it can be repaired.

Maintenance needs have increased rapidly over the past decade, as documented by the Parks Department’s own maintenance requests. Recommended maintenance needs shot up 143 percent between FY 2006 and FY 2016, from \$14 million to nearly \$34 million. In FY 2016, however,

Share of the Parks Department's State of Good Repair Needs Met Since FY 2007

Year	State of Good Repair Needs	Agency Planned Activities	Share of Needs Met
FY07	\$405,914,000	\$64,469,000	15.9%
FY08	\$410,356,000	\$62,863,000	15.3%
FY09	\$401,448,000	\$26,955,000	6.7%
FY10	\$379,635,000	\$38,208,000	10.1%
FY11	\$399,212,000	\$61,449,000	15.4%
FY12	\$418,778,000	\$72,418,000	17.3%
FY13	\$471,151,000	\$81,225,000	17.2%
FY14	\$488,108,000	\$76,646,000	15.7%
FY15	\$509,671,000	\$59,163,000	11.6%
FY16	\$555,628,000	\$63,402,000	11.4%
FY17	\$589,098,000	\$88,326,000	15.0%

Source: Center for an Urban Future analysis of data from the Office of Management and Budget

just 12 percent of that request was actually funded—one of the lowest rates among city agencies.⁵ What's more, those stated needs may be vastly understating the issue—in Minneapolis, a city with a parks system much smaller than New York's, the deferred maintenance need was \$110 million in 2016.⁶

Since the 1970s fiscal crisis, the full-time staffing headcount of the Parks Department—including full-time and full-time-equivalent positions—has dropped from a high of 11,642 in 1976 to a little over 7,600, while shifting to a more seasonal workforce over time.⁷ Although staffing increased 11 percent between 2014 and 2016, nearly every expert we interviewed says that maintenance staffing levels are insufficient for the aging system, especially amid unprecedented usage.⁸ “It's always ‘do more with less,’ but you're only going to be able to hit a certain point with that mindset,” says one senior DPR administrator. “It's just not sustainable.”

Insufficient maintenance funding means that New York's parks system is dramatically understaffed when compared to other cities, with consequences for both day-to-day upkeep and the long-term health of its infrastructure. The result is that bathrooms go without water, drainage systems get blocked and cause flooding, walls deteriorate, and plantings and forests die. For instance, New York City has about 150 gardeners citywide for nearly 20,000 acres of parkland, not counting natural areas, and more than two million trees, a ratio of one gardener to every 133 acres—about one-quarter the size of Prospect Park. By comparison, the San Francisco Recreation and Parks Department has over 200 gardeners for 4,113 acres of parkland, a ratio of one gardener to 20 acres.⁹ (It should be noted that other staff support the work of gardeners in New York, including community park workers who focus specifically on

horticulture.) Similar shortages exist for other skilled tradespeople, including plumbers, electricians, masons, carpenters, and marine mechanics.

Some districts—like Bronx's Community Board 8—have zero dedicated gardeners, although these areas are still serviced by mobile crews, while others have just one or two, which makes effective horticultural maintenance impossible. Parks surveyed in these communities were found to be in noticeably worse shape, with copious weeds and invasive plants and disheveled or dead plantings. In contrast, the Central Park Conservancy had a \$52.3 million operating budget in FY 2016, including \$8 million in city funding, and oversees a maintenance and operations team of 125 people for 840 acres, or one worker for every six acres. The High Line has a horticultural staff of 13, overseeing a little less than seven acres. Sustaining these world-class green spaces requires a level of maintenance staffing that the rest of the city's parks sorely lack.

The Parks Department's expense and state of good repair capital budgets have been chronically underfunded, weakening infrastructure and boosting long-term costs.

Since parks are generally not hot-button campaign issues, like education or public safety, a number of sources say that the city's parks have never received appropriate levels of funding—and the share of parks funding in the city budget declined steadily for four decades, before receiving a boost over the past four years. Without taking the cost of pensions, debt service, and fringe benefits into account, the Parks Department's adopted expense budget for FY 2018 was \$532 million, or 0.6 percent of the city's overall budget of \$87 billion that year—a share that has declined steadily from 1.32 percent in 1976.¹⁰ Under the de Blasio administration, however, that budget share has risen from 0.53 percent in FY 2014.

According to the Trust for Public Land's 2017 ParkScore, New York spends less per capita on parks than other major metropolises that are a fraction of its size, a total of \$178 per



citizen, although this total does not take into account the cost of debt service, pensions, and fringe benefits. Highly rated Minneapolis spends \$233 per capita; Washington, DC, spends \$270.¹¹ Even with 45.5 people per city acre, not including railways and airports—the highest population

density of any major city in the United States—New York has low overall levels of parks funding that contribute to the system’s struggle to maintain its infrastructure.

In FY 2017, the Parks Department was able to cover just 15 percent of its state of good repair needs, which was the second-lowest rate of any city agency, after the Brooklyn Public Library. The price tag of these infrastructure needs is also on the rise: in FY 2007, they totaled \$405 million, according to the city’s AIMS reports, which detail the state of good repair needs for each agency over the following three years. By FY 2017, the cost had risen to more than \$589 million—a 45 percent increase. This lack of funding means that many of the city’s parks wait decades before receiving upgrades.

To target these forgotten parks, the de Blasio administration launched the Community Parks Initiative, which funds renovations on an annual basis for parks that are between .15 and five acres in size, are located in high-density areas, and have not received at least \$250,000 in capital investment between 1993 and 2014. This important initiative is the first citywide effort designed to invest specifically in parks that have gone chronically underfunded. But it can barely keep up: while 67 parks are currently undergoing improvements, as of the end of 2017, 215 parks were ultimately found eligible. Likewise, under Parks Without Borders—an initiative to improve access to green space—eight parks were chosen to receive \$50 million in improvements. Yet 691 parks applied, reflecting the demand for these improvements citywide.¹²

Piecemeal funding for parks infrastructure discourages systematic investment in areas of greatest need. With a slim baseline budget for capital work and limited funding through the community boards, the department’s capital budget is largely cobbled together through discretionary funding, allocated by 51 City Council members, five borough presidents, and the mayor. This system makes it challenging for the Parks Department to prioritize funding for the most urgent infrastructure needs. Instead, elected officials will typically fund projects that constituents are clamoring for, rather than the more low-profile infrastructure investments that parks sorely need. It is far more likely that discretionary funds will be put toward building a playground or dog run rather than shoring up a retaining wall or fixing underground drainage systems.

“How projects are funded is so important,” says Susan Donoghue of Prospect Park. “You’ve got capital dollars coming into parks from council members or elected officials, funding what they know their constituents want to see. They love the playgrounds, and they love comfort stations, but who’s going to want to fund drainage projects? It’s definitely not as glamorous, or sexy, and yet it’s so critical to the everyday maintenance of a park.”

The high cost of capital projects means that vital, large-

scale investments often require several elected officials to pool funds, an approach that delays essential park projects and hinders cost-effective planning. In a system that relies on elected officials for most parks funding, those representing districts with greater socioeconomic needs end up with lesser-funded parks, exacerbating inequities across the city’s parks system.

According to an analysis of all capital work completed since 1996, District 1 in Manhattan (Financial District, Chinatown, and the Lower East Side) has received \$134 million for 134 site-specific capital projects. By comparison, in Washington Heights’ District 10, parks capital spending amounts to just 12 percent of District 1’s total: less than \$16 million for 43 capital projects over the past 20 years. In Queens, four council districts—which contain high-density neighborhoods such as Elmhurst, Jackson Heights, and Jamaica—had a combined capital investment of less than \$50 million, barely 40 percent of the money spent in Manhattan’s District 2 (Gramercy Park, Kips Bay, and East Village), which totaled close to \$125 million.

The city lacks critical data to effectively, and efficiently, plan parks projects. A more systematic approach to maintaining parks infrastructure requires actionable data, but the city is only just beginning to make data collection a priority. As of this report’s publication, the Parks Department is finally undergoing its first-ever needs assessment, which will catalog the age and capital needs for 50 types of infrastructure in all city parks. So far, only four types—comfort stations, recreation centers, synthetic turf fields, and retaining walls—have been funded for analysis. At this rate, Parks Department officials say, it could take up to 20 years to finish the assessment—a lifetime when it comes to specific infrastructure categories. Until the process is complete, it remains nearly impossible to answer integral questions about the parks system’s needs.

Although this initial effort is a critical first step, other essential data collection efforts remain unfunded. For example, natural areas are only included in the Parks Inspection Program (PIP) where there are trails, leaving one-third of the city’s parkland with only partial inspections, while a citywide horticultural mapping effort is still in the preliminary stage.

In addition, the city’s Assets Information Management System leaves out assets with a replacement cost of less than \$10 million, and excludes “most equipment,” “landscaping or outdoor elements,” and “aesthetic considerations.” Every source interviewed for this report agrees that the \$555 million total for FY 2016 seriously underestimates the true extent of the system’s needs, but there is no data available to provide a more complete estimate. As a result, one Parks Department official says AIMS is like “a drive-by estimation of costs.” The data deficit also makes it much more difficult for the Parks Department to advocate on



Cracks and potholes spread across the pavement in Riverside Park.

behalf of specific parks and infrastructure needs, resulting in a system in which new facilities and visible improvements are far more likely to receive funding than fixes to invisible infrastructure or preventative maintenance.

“DPR staff are not drivers of the process—they need to be able to say to elected officials the minute they’re elected, ‘Here are your problems, and here is what we need to do to fix them,’” says Denise Richardson, executive director of the General Contractors Association, whose members often work on parks projects. “Right now, that doesn’t happen, but that’s what parks need.”

Insufficient inter-agency coordination prevents systematic planning and cost-sharing. Jurisdiction in parkland is often hazy. No one city agency coordinates waterfront reconstruction, for example, and where responsibilities fall between the Parks Department and other departments, namely DOT and the Department of Environmental Protection (DEP), is often unclear. This interagency “rigmarole,” as one Bronx park administrator describes it, significantly delays the repair of crucial parks infrastructure. “Even though DOT maintains the roads, and DEP maintains the storm sewers and hydrants,” she

says, “when it comes down to something like leaks on the roadways—who’s going to pay for it, and who’s going to fix the leaks—it can become very problematic.”

For example, the role of overseeing park bridges raises significant questions. Although DOT is technically tasked with their inspection, superficial upkeep is left to the Parks Department; in many cases, administrators have been left unclear regarding who is responsible. Catch basins in parks were once cleared by DEP, an agency with deep experience in water management. In recent years, the Parks Department has been charged with clearing them, despite lacking the capacity to handle the demand. Park advocates and administrators say that better coordination among agencies could expedite infrastructure repair projects and find more efficient ways to handle recurring maintenance needs.

The cumbersome capital process for parks projects leads to high costs and delayed fixes. The capital process for parks projects has earned a reputation among elected officials and residents as especially time-consuming and frustrating. On average, parks capital projects cost more and take longer than similar public-private partnerships.

For example, the Trust for Public Land, which has built more than 186 playgrounds in New York City public schools, reports that its costs are roughly half what the Parks Department pays. At a time when mounting needs and declining revenues mean capital dollars need to stretch as far as possible, the high costs of parks capital projects present a major obstacle to infrastructure improvement. In addition, extremely long timelines cause public consternation and frustrate elected officials, leading some to question the viability of funding parks projects.

“I have to question the logic,” says Council Member Andrew Cohen of the Bronx, “when projects I funded at the very beginning of my first term still haven’t seen a shovel in the ground.” For example, the process to build a single comfort station in Harlem’s Marcus Garvey Park, at a cost of \$3.2 million with four different funders, started in March of 2015, and is projected to conclude in January 2019.¹³ A similar project in Brooklyn took seven years and \$2 million to build.¹⁴ According to a *New York Daily News* investigation, the Parks Department had 43 projects delayed for five or more years in 2017.¹⁵

The capital process for parks projects is highly circuitous, with at least seven different agencies and offices reviewing various elements of each project, including a number of time-intensive approvals from the Office of Management and Budget (OMB). In most cases, these problems are not unique to the parks system, but reflect deeper issues with the city’s capital process overall, although officials report particular frustrations with the slow pace of many parks projects. Under the leadership of Commissioner Mitchell Silver, the Parks Department is making improvements to the capital process, shaving several months off the design and construction phases for newly initiated projects and mandating additional pre-construction testing to head off deeper changes down the road. But these efforts will have to go much further in order to significantly speed up the process and control skyrocketing costs.¹⁶

Although the needs may appear daunting, revitalizing New York City’s public parks infrastructure will be essential to the city’s future. “Parks, in and of themselves, are vital infrastructure,” says Commissioner Silver. “Parks are the first line of defense in New York’s resiliency efforts. They are increasingly used for stormwater retention, as tides rise. And they are now home to transit networks that are connecting the city.”

To its credit, the de Blasio administration’s Community Parks Initiative and Anchor Parks Initiative have placed renewed emphasis on parks equity, investing in infrastructure improvements across all five boroughs. Between 2014 and 2016, the Parks Department’s expense budget increased by 16.4 percent, and its focus has largely shifted from building new parkland—which remains integral for the city’s healthy development—to much-needed state of good repair spending, infrastructure

planning, and maintenance. Voluntary commitments made by conservancies to provide maintenance in lesser-funded parks are also positive steps in balancing the playing field.

The city’s ten-year capital strategy for parks in FY 2019 is also the largest in the agency’s history, allocating \$4.6 billion for parks, or \$460 million per year. Meanwhile, the parks system’s state of good repair estimate—the funds necessary to bring its assets up to par—is \$589 million for the next three years. Yet this report finds that both amounts fall short of the full scope of needs. We estimate that bringing the parks system up to a state of good repair would cost at least \$5.8 billion over the next decade, or nearly \$580 million a year; this figure only includes estimates of the repair and renovation costs to upgrade existing infrastructure, rather than including projected costs for any new additions.

“New York City was blessed with having a tremendous program of construction during the Works Progress Administration,” says Adrian Benepe, former Parks Department commissioner under Mayor Michael Bloomberg and senior vice president at the Trust for Public Land. “But all of those structures—bridges, highways, parks, pools—they’re all nearing the end of their natural life. So I’d say a very, very big bill is coming due, in the billions.”

Renewing the health of New York’s parks will require an unprecedented commitment from city policymakers to build a system that is prepared for the next century of increasing use. “There’s a philosophical shift that needs to take place, where parks are seen as critical city infrastructure,” says Lynn Kelly, executive director of New Yorkers for Parks, and former president of Snug Harbor Cultural Center & Botanical Garden, on Staten Island. “Just as sewers and electrical lines are maintained, parks and open space should have equal weight in how they are funded and maintained.”

This report documents the most pressing infrastructure and maintenance needs facing the parks system today, examines best practices in cities nationwide—including Minneapolis-St. Paul, Chicago, and Philadelphia—and puts forward new approaches to planning, revenue sharing, and interagency coordination. The report concludes with a host of practical and achievable recommendations to maintain and improve New York City’s public parks, including options for new revenue sources to fund parks improvements, ideas for better maintaining and upgrading existing infrastructure, and investments in sustainable green infrastructure careers like public horticulture and stormwater management. Taken together, these findings document the challenges facing the parks system and form a blueprint for revitalizing New York City’s public parks infrastructure.

OVERVIEW

- ▶ New York parks are some of the most frequented in the country, with more than 100 million visits each year.
- ▶ Largely built in the first half of the 20th century, most parks infrastructure has been in continual use for over 50 years, and many structures are nearing the end of their natural lifespans.
- ▶ Chronic underinvestment in the city's parks has left them with a wholly insufficient level of maintenance, resulting in a boom-and-bust cycle that ends up costing the city more.
- ▶ The city has systematically funded just a fraction of parks' maintenance needs, letting demands on infrastructure mount.
- ▶ A reliance on discretionary spending for the Parks Department's capital needs makes it difficult to plan projects systematically, and creates an inadequate system for funding state of good repair needs.
- ▶ The city lacks the data required to develop a systematic approach to parks maintenance and upgrades, hindering its ability to effectively plan.
- ▶ Challenges surrounding interagency collaboration prevent certain projects from being divvied up efficiently and slow progress on infrastructure fixes.
- ▶ The cumbersome and costly capital construction process is particularly problematic for parks, frustrating elected officials and the public, and leading to high costs and long delays.

GROWING PRICE TAG

- ▶ State of good repair needs for the Parks Department have consistently increased over the years, rising from \$471 million in FY2014 to over \$589 million in FY2017—an increase of 25 percent.
- ▶ The gap between mounting needs and dedicated spending has widened. In FY2016, the Parks Department was able to fund just 11 percent of its total state of good repair needs, or \$63 million—the second-lowest share of any city agency.
- ▶ Likewise, the Parks Department was able to cover just 12 percent of its estimated \$34 million maintenance needs in FY2017—again, one of the lowest shares of any city agency.
- ▶ This report estimates the cost for bringing the parks system up to a state of good repair to be at least \$5.8 billion over the next decade.

DRAINAGE SYSTEMS

- ▶ In visits to 65 parks citywide, nearly 50 percent had notable drainage problems, including standing water, flooded fields, and overflowing sewer systems.
- ▶ Nearly every expert we interviewed cites drainage problems as one of the most severe infrastructure issues facing the parks system.
- ▶ Many parks still rely on clay pipes built in the mid-20th century, and there is only one truck to clear catch basins citywide. Over the next ten years, the city plans to spend \$268 million on drainage systems in parks. But when a single drainage

project can cost upward of \$6 million, this report finds that the current cost may seriously underestimate the system's total drainage needs.

RETAINING WALLS

- ▶ Retaining walls are usually as old as the park itself, and rarely receive sufficient preventive maintenance. One Parks Department official says “virtually every retaining wall has a crack in it.”
- ▶ Until the needs assessment is complete, and an official count is provided, it is difficult to estimate the full scope of repairs necessary for parks' retaining walls. Yet one recent, years-long reconstruction of retaining walls at eight separate parks cost over \$20 million.¹⁷
- ▶ With thousands of retaining walls spread across the system—and given the serious consequences when they fail—the real need is likely to be much higher.

WATERFRONT FACILITIES

- ▶ The Parks Department oversees 148 miles of waterfront parkland.
- ▶ On average, waterfront facilities are 76 years old. These structures are highly susceptible to corrosion, due to age, harsh water conditions, and growing use.
- ▶ The maintenance need for the Parks Department's piers, bulkheads, marinas, and docks citywide was reported to be \$4.3 million in FY2017¹⁸. But this estimate may greatly understate the actual cost; by comparison, the reconstruction of Pier 1 alone, at World's Fair Marina in Queens, will cost at least \$36 million.

BRIDGES

- ▶ Bridges in parks were largely built at the same time as the park itself, meaning they are, on average, 73 years old—ten years older than the average city bridge.¹⁹
- ▶ According to DOT's 2016 bridge survey, 20 percent of the bridges co-owned with the Parks Department received a rating in the 3 range, meaning “serious deterioration, or not functioning as originally designed,” the majority being in Manhattan and Queens.
- ▶ The average rating was a 4.42, which lies between “serious deterioration” (3) and “minor deterioration” (5). One bridge received a 1 for its condition, meaning “potentially hazardous.”
- ▶ A bridge does not enter DOT's annual bridge survey until it is funded for inspection, or “discovered,” leaving an unspecified number of bridges out of regular inspection.

STREETS, SIDEWALKS, AND STAIRS

- ▶ Out of the 65 parks surveyed citywide, problems with streets and sidewalks—such as paving issues, dangerous cracks, and general degradation—were observed at more than a quarter of them. At least one in 10 had issues with stairs, including uneven steps, missing stones, and general disrepair.
- ▶ Unlike DOT, the Parks Department has no formal system of maintenance for streets, sidewalks, or stairs.
- ▶ The estimated capital cost for parks' roads and streets is \$53 million between FY 2018 and FY 2022.²⁰ Yet without an official count, it is difficult to estimate the total cost of repair for the hundreds of miles worth of streets, sidewalks, and stairways citywide. However, a single stairway reconstruction can cost \$500,000 or more.²¹

COMFORT STATIONS

- ▶ As of April 2017, there are 616 “toilets in public parks” citywide.
- ▶ Out of 65 parks, 23 comfort stations had notable issues, such as broken stalls, plumbing issues, and locked facilities.
- ▶ The city's ten-year capital strategy includes \$22.8 million for comfort station reconstruction.²² But given the escalating costs of comfort stations, it is unclear whether that sum will cover all of the system's needs.

PLAYGROUNDS

- ▶ While generally in a state of good repair citywide, playgrounds' quality, sources say, depends on location.
- ▶ Out of 65 park visits citywide, seven playgrounds in low-income, high-density areas had notable issues, including aging safety surfacing, rust, and unstable or broken equipment.
- ▶ A new playground can now cost up to \$3 million to rebuild, and has a natural lifespan of 15 to 20 years.

RECREATION CENTERS

- ▶ Over 3.4 million people visited recreation centers in FY 2017.
- ▶ Nearly half of the city's recreation centers were built prior to 1950.
- ▶ The city's ten-year capital strategy includes \$118.1 million planned for the renovation of “recreation/nature centers.”
- ▶ Since 17 percent of recreation centers have been rated as “unacceptable”—or eight recreation centers, in total—and given that the average cost of a complete renovation is at least \$15 million, the cost of restoring the city's recreation centers could be even higher.

POOLS

- ▶ In FY 2017, close to 1.5 million people dived into the city's intermediate and Olympic-sized park pools.²³
- ▶ Nearly 40 percent of the city's pools were built in the 1930s, and 50 percent prior to the 1970s. A majority of those pools went decades without a major renovation.
- ▶ The city plans to spend \$34.4 million on pools over the next decade. Yet with 65 public pools citywide, and a natural lifespan of 25 years, this report estimates that the cost of repair could be much higher.

HORTICULTURE

- ▶ The Parks Department currently does not have a citywide horticultural map for management. One only exists for Manhattan.
- ▶ Out of 65 park visits citywide, horticultural issues, such as dead plantings or overgrown lawns, were observed at over 35 percent of them.
- ▶ In FY 2017, there were 150 gardeners—50 of which are not permanent positions, but funded yearly—tasked with nearly 20,000 acres of parkland; a ratio of one gardener for every 133 acres.
- ▶ In some parks districts, there are either few full-time gardeners, or none.

FORESTRY

- ▶ The Parks Department is responsible for 666,134 street trees, and 3.5 million trees in forests, parks, and elsewhere.
- ▶ As of July 2017, the agency had 70 foresters, divided by borough, and 120 budgeted positions for climbers and pruners.
- ▶ In FY 2018, the city will spend \$81.9 million on new tree plantings and “Greenstreets” citywide.²⁴ Yet although the budget has seen a steady increase in recent years, the dollars for tree care lag behind the sheer number of trees being planted. In FY 2018, the agency budgeted \$12.1 million for tree stump removal, pruning, and other services.
- ▶ In FY 2017, the agency pruned 70,443 trees—a decrease of over 16,000 trees from the year before.²⁵ Citywide, 14 percent of the trees that were eligible for pruning were actually pruned.
- ▶ The five-year trend for tree removal is down, to 3,997 trees in FY 2017. That year, only 47 percent of trees were removed within 30 days of a service request.

The following is a summary of the report's recommendations.

Improving How NYC Pays for Parks

- ▶ Make investment in NYC's aging parks infrastructure a priority for the de Blasio administration's second term.
- ▶ Fund a larger expense budget for the Parks Department.
- ▶ Establish a sustained stream of capital funding for routine state of good repair investments.
- ▶ Identify innovative revenue streams and new ways of capturing value from parks infrastructure.
- ▶ Increase the revenue generated from parks concessions.
- ▶ Create a citywide parks conservancy to help fundraise for neighborhood park projects.

Improving How NYC Maintains Parks

- ▶ Increase maintenance and operations staffing levels to support parks, playgrounds, gardens, horticulture, and other parks assets.
- ▶ Revamp the Parks Opportunity Program as an initiative to develop career pathways in green infrastructure.
- ▶ Mandate detailed maintenance plans for capital projects.
- ▶ Set a maintenance schedule for park streets, sidewalks, and stairs.
- ▶ Improve parks infrastructure through testing of new designs and materials that meet the needs of modern users, and reduce long-term energy and maintenance costs.

Improving How NYC Plans for Parks

- ▶ Create a City Parks Board charged with long-term planning across administrations.
- ▶ Fully fund a regular system-wide needs assessment, and other data-gathering initiatives.
- ▶ Expand the Community Parks Initiative, Parks Without Borders, and Anchor Parks.
- ▶ Supplement AIMS with a database of parks assets that includes key categories left out of the current system.
- ▶ Encourage more skill sharing and coordination among agencies.
- ▶ Complete a comprehensive parks bridge survey.
- ▶ Invest in an interagency Green Lab.

Improving How NYC Builds Parks

- ▶ Improve the capital construction process for parks.
- ▶ Expedite and implement the work of the City Council's Capital Projects Management Task Force.
- ▶ Prequalify more contractors for higher-value parks projects.

INVISIBLE INFRASTRUCTURE

The unseen infrastructure of city parks—including drainage systems, retaining walls, and waterfront structures—poses the most imminent threat.

New York City’s sprawling parks system poses several distinct infrastructure challenges, affecting parks of all sizes across all five boroughs. Our research assessed these infrastructure issues and found a handful of key problem areas, many of which fall within the category of invisible infrastructure, such as drainage systems, retaining walls, and shoreline structures.

Drainage Systems

Every park and playground requires drainage: largely invisible, below-grade systems that collect and carry away surface rainwater and prevent flooding. When these systems clog or break down, ballfields, running paths, and picnic areas end up submerged—sometimes for days after a rainstorm—and large sections of parks can become unusable. These complex systems include wastewater lines and sewers that move excess water, either from rainfall or facilities, out of a park, preventing flooding and erosion. Likewise, catch basins provide pathways for water to be collected and filtered before entering the sewers below.

These systems are vital for a park’s operation and function as essential tools for stormwater management—an increasingly important infrastructure element as climate change contributes to more extreme weather events. However, parks drainage systems are frequently clogged with sediment, collapsed, or otherwise inoperative, leaving too many parks woefully unprepared to handle even the slightest downpour. As a result, nearly every expert we spoke with says drainage is one of the largest infrastructure challenges facing the city’s parks.

“There are drainage problems everywhere,” says one senior DPR official, who asked not to be named. “Maintenance and operations can’t clean pipes, so we end up focusing on superficial fixes, because the systems are all destroyed. And if you don’t take care of drainage, it affects everything else.” Both current and former park administrators cited sediment-clogged sewer pipes and resulting sinkholes as common problems systemwide.

Out of 65 parks surveyed citywide, over 50 percent had notable drainage problems, including large bodies of standing water, flooded fields, and backed-up sewer systems, even though it had been at least two days since the last rainfall in all of the parks we reviewed. The Bronx’s Tremont Park had standing water next to the playground, flooding outside of the central water fountain, and large puddles near the softball field and main stairway. Along the

Bronx River Greenway, several trails were entirely caked in mud due to water overflow. In the century-old Lincoln Terrace Park in East New York, large amounts of water streamed down the eastern side of the park. In the northern section, a puddle under the hill appeared a foot deep.

At Forest Park, in Queens—which was designed and built by Frederick Olmsted in the late 1800s—Mk Moore, the head of the park’s volunteer group, says that 14 of the park’s 48 catch basins are collapsed. A lack of maintenance has led to chronic drainage problems, he explains, pointing out sewer grates at the Park Lane South entrance that were plugged up with dirt, sand, and weeds. A section of road designated for bikers, joggers, and pedestrians was submerged in water from a storm several days before. “The day it rains, this entire street is filled with water,” Moore says. “The catch basins are all connected. If this is full, nothing is getting down here.” Because of a collapsed catch basin, he says, a small sinkhole has formed along the road, with eight feet of water below. He installed a wooden board to prevent anyone from slipping in. “If you fell into this hole, you’d die,” says Moore.

Pelham Bay Park, the largest in the city, still has old sewer lines that drain directly into the surrounding water bodies. The park was built in 1888, and its main thoroughfare, Shore Road, floods often. “It is mapped parkland, but DOT maintains it and DEP weighs in on drainage issues,” says Marianne Anderson, the park’s administrator, who adds that a lack of clear responsibility among agencies makes solutions more challenging. “There are numerous underground springs in this section of the park that run underneath Shore Road. Old stone culverts are buried and don’t work anymore. We have had leaks in the roadbed, large puddles, and flooding issues.”

No park exemplifies this problem better than Flushing Meadows Corona Park, which was built for the 1939 World’s Fair. On a fall visit, basketball courts had turned into ponds, more than two days after the last rainfall. Around the perimeter of Meadow Lake, huge puddles of water engulfed the sidewalk, with gravel entirely missing from some pathways. DPR officials also say the area in front of the Olmsted Center, which houses the borough’s design, construction, and engineering divisions, floods often, with stories of fish floating down the hallways after Hurricane Sandy.

“Flooding is a major problem here, because the park used to be marshland and has a high water table,” says Janice

Melnick, the park's administrator. "The park acts as a catch basin for the surrounding highways and neighborhoods." Experts cite the effects of climate change—including sea level rise and increased rainfall intensity—as further contributors to flooding problems, as well as development in the watershed, which decreases absorption in the landscape and makes drainage issues worse.

At Whitey Ford Field, in Astoria, drainage is a constant issue, leading to uneven grading in the grass and outfields that are underwater. Sewer grates are also checked throughout the field, which players say poses a danger when running to catch a ball. After years of complaints, an upgrade for the field's drainage system was funded in the FY 2018 budget, with a \$2 million allocation.²⁶ But this is one of only 35 parks to plan or receive a specific drainage system upgrade, according to DPR documentation of capital projects, since 1996.

Since parks often go decades without major renovations, many still use decades-old claypipes, which, over time, either crack or are damaged by tree roots, leading to complications that can be unearthed later during unrelated construction. "The rule of thumb was that, if you're going into a park that hasn't been touched in 50 years, you should just replace everything," says Angelyn Chandler, deputy commissioner for capital programs at the New York State Office of Parks, Recreation, and Historic Preservation, and a former capital program team leader at the Parks Department. "Because you can pretty much count on pipes being broken, and all the catch basins being clogged. The pipes may have lead or other materials that you shouldn't be using anymore."

This fundamental infrastructure component contributes to the health of a park as much as its visible facilities and structures, yet drainage is largely hidden from the public eye and kept off the radar of policymakers. "Drainage systems are not regularly inspected," says Therese Braddick, DPR's deputy commissioner of capital projects. "Catch basins are a classic example of important infrastructure that's certainly not sexy."

Adequate drainage maintenance can make or break other infrastructure systems. Blocked or broken pipes and catch basins cause flooding that can damage pathways, speed erosion, and shut down electrical and plumbing systems. Drainage problems in public parks also contribute to combined sewer overflows, which cause billions of gallons of polluted stormwater and raw sewage to empty into local harbors each year.

"That broken water fountain that would break every single year—requiring \$5,000 here, \$10,000 there—it wasn't the fountain per se," says Lynn Kelly of New Yorkers for Parks. "It was all the substructure that was decades old, entailing millions of dollars' worth of repairs that we knew we couldn't afford."

Drainage directly affects the experience of park patrons in other ways, too. Joan Byron, the co-chair of the Bronx

River Alliance, and an expert on environmental equity, says that since the area along the river's southern mouth was built for industrial purposes, Concrete Plant Park in the South Bronx has no sewer or wastewater lines. "We can't have bathrooms on site, and not having a bathroom means we can't have full-time, fixed-post staff there, and that's a problem for programming, and security," she says. "It's expensive to solve, well into the northern end of the millions."

The Parks Department estimates capital needs for its water and sewer utilities of more than \$107 million between FY 2018 and FY 2021. But this number likely falls short of the full scope of drainage needs, especially given the known costs of individual projects. In addition, rather than just replacing aging drainage systems, many flooding problems could be more effectively mitigated by designing and installing systemwide, water-sensitive green infrastructure—a smart, long-term investment that will require substantial new resources.

Marianne Anderson of Pelham Bay Park says DEP officials estimate Shore Road's drainage overhaul alone could cost \$6 million. "And that's not even a mile," she adds. Over the next ten years, the city plans to spend \$268 million on drainage systems in parks citywide. But when a single drainage project can cost millions of dollars, and with hundreds of parks in need, this report finds that the full scope of necessary investment may be closer to \$850 million.

Retaining Walls

Given New York's varying topography—from the hills of upper Manhattan to the coastline of Staten Island—hundreds of city parks require retaining walls to maintain their physical integrity. These lateral structures quite literally prop up a park, and hold back the massive weight of the surrounding environment. Retaining walls are some of the oldest pieces of parks infrastructure, almost always built at the time of a park's origin, and thus prone to severe decay. In recent interviews, several park officials, community board members, and advocates say that retaining walls pose an immediate, yet largely unseen, citywide infrastructure challenge. "Retaining walls are very important, very expensive, and can have catastrophic results," says Adrian Benepe.

There are thousands of retaining walls in parks across the city, ranging from several feet to several miles long, and hundreds are in deteriorated condition. According to one DPR official, who spoke to us on the condition of anonymity, "Virtually every retaining wall has a crack in it." In the Bronx, the 80-year-old retaining wall that surrounds Claremont Park—one of the largest parks in the borough—is cracked and shifting. Further east, in Mott Haven, the retaining wall along Playground 52 LII, a park that has notoriously gone without repair for decades, has a retaining wall along Kelly



A parking lot in Flushing Meadows Corona Park remains flooded two days after a rainstorm.

Street that is notably bulged.²⁷ In Fort Greene Park, one of Brooklyn’s oldest, which dates to 1850, the retaining wall is “crumbling,” says Jeffrey Sandgrund, the former park manager there. “To fix it, you’d have to excavate the entire wall and shut the park down. The cost of that alone is in the millions,” he adds. “And that’s just one wall in one park.”

A significant portion of the city’s current parks infrastructure spending is dedicated to two retaining walls in Riverside Park, another Olmsted design from 1875. Adrian Benepe says many other walls date to the 1930s, if not earlier. “The train tunnel there opened 80 years ago and might need complete replacement at some point,” he adds. “That would be probably a \$3 or \$4 billion project.”

Charles McKinney, former Riverside Park administrator and Parks Department chief of design, explains that the conditions of retaining walls like those in Riverside Park are directly connected to drainage issues. Drainage problems can cause water to leak into retaining walls, creating dangerous voids. “When walls and stairs are not pointed, water seeps into the joints between wall stones and capstones,” McKinney says. “Water freezes and the ice expands and moves the stones—a gradual process that leads to stone displacement and collapse.” To avoid these catastrophic failures, retaining walls require regular inspection and pointing, but skilled maintenance of masonry structures is not adequately funded in the current expense budget.

New York City has witnessed the catastrophic consequences of retaining wall failures before. In 2005, a century-old retaining wall in Washington Heights collapsed onto the Henry Hudson Parkway, snarling traffic and igniting a years-long effort to figure out who would pay the tab.²⁸ “Nobody knew what a retaining wall was,” says Council Member Mark Levine, the former chair of the body’s Parks and Recreation Committee. “Then the one collapsed in Washington Heights, and everybody wanted an inspection.” In May of 2017, a retaining wall collapsed underneath the Gowanus Expressway, yet luckily, no one was hurt. Many of those we interviewed say that there is potential for a similar collapse in one of the many poorly maintained retaining walls in the city’s parks.

The estimated capital costs for parks walls is over \$42 million between FY 2018 and FY 2021. However, that cost may significantly underestimate the extent of this issue, and what it could cost the city in the long term. For example, an ongoing capital project for citywide reconstruction of retaining walls and seawalls at just eight parks has cost over \$20 million to date. Many parks administrators believe that a large number of retaining walls will need to be repaired or replaced in the coming years, but the full picture will not be known until the Parks Department completes its first systemwide needs inspection, which is underway as of this report’s publication.

Waterfront Facilities

As made clear in the aftermath of Hurricane Sandy in 2012, parks and beaches are on the front lines of the city's resiliency efforts. Sea level rise and coastal storms increasingly threaten parks infrastructure, and parks have an important function as ecological buffers in a city of islands. The Parks Department oversees 148 miles of waterfront parkland—the third-largest stake of any city agency—including popular destinations like the Rockaway boardwalk, the city's many beaches, and the parks along the East River. The agency recently released updated guidelines to design and plan for coastal flooding, but the needs are quickly growing as New York City confronts the challenges of climate change.²⁹

"We call our waterways the sixth borough," says Margaret Flanagan, director of education and outreach at the Waterfront Alliance, and a licensed captain. "It's a source of recreation, transportation, and 100,000 jobs. But the city hasn't put in the necessary maintenance dollars to meet that demand. We just haven't kept up."

According to data on the Parks Department's website, the average waterfront facility is 76 years old. The city's harsh water conditions batter its beaches, piers, bulkheads, and docks, which are built primarily with vulnerable wood and concrete materials along the shoreline, leading to structural problems below the surface.

Like many park projects, waterfront facilities too often reach a state of collapse, due to lack of maintenance, and lay dormant or unused until a large infusion of capital dollars can revive them. The kayak dock in the West Harlem Piers sank in 2015, and still hasn't been replaced. Cromwell Recreational Pier, on Staten Island, also met the same fate in 2010.³⁰ "There used to be a Pier 2, but it's gone now," says Janice Melnick, of the World's Fair Marina, at Flushing Meadows Corona Park. "Despite seawater erosion, it just wasn't maintained."

The World's Fair Marina, says Nate Grove, DPR's marina manager, increasingly hosts a number of water sports teams, private cruises, chartered boats, ferries for Mets games and the U.S. Open, and educational programming for children. "It's a true working marina. It's a revenue source. It's public access," says Grove. But Pier 1, which dates back to 1937, was badly damaged by Hurricane Sandy, and had longstanding repair needs when it closed.³¹ In conjunction with FEMA, a reconstruction plan was recently approved for \$36 million, yet could end up costing more. "This structure has run its lifespan several times over," says Grove.

In July of 2017, DPR began work on a \$15 million project to repair severely damaged parts of the East River Esplanade; a seawall on East 88th Street had collapsed months before.³² Further south down the shoreline, extensive cracks have formed around several sitting areas, which are subsequently fenced off from the public. "The Esplanade has sinkholes that open and appear at random times," says

Marie Winfield, a former member of Community Board 11's parks committee. "It's a real concern."

In addition to age, the condition of waterfront parks and beaches is affected by a notable increase in use. The number of city residents who now enjoy waterfront recreational activities has skyrocketed over the past ten years, as more businesses and residential developments expand along the shoreline and water quality gradually improves. Low-lying waterfront neighborhoods are now seeing some of the highest levels of construction citywide.³³ With countless tour boats and 4.6 million passengers expected to board the recently expanded NYC Ferry by the end of 2018, passenger traffic is booming.³⁴ While a testament to the success of waterfront revitalization efforts, this heavy use puts more of a strain on waterfront infrastructure than ever before.

During his tenure as borough parks commissioner, Adrian Benepe says, the pilings along East River Park, built in 1939, had gone nearly 60 years without maintenance. "They had to shut down the entire East River waterfront and rebuild it," he recalls. "It took 10 years, and something like \$80 or 90 million." But that, Benepe warns, is just a fraction of what the overall waterfront cost could shape up to be. The city will likely have to do similarly large-scale repairs along the waterfronts in Queens and the Bronx.

"Every place where park meets water, particularly rivers, oceans, and so on, there's a tremendous impact on the infrastructure. It's very expensive," says Benepe. "New York is a waterfront city, some 600 miles of waterfront, and much of that is park. As a result, you have bulkheads, platforms, piers. The cost to repair these structures is way in the billions."

In the Center for an Urban Future's 2014 *Caution Ahead* report, John Natoli, then DPR's chief engineer, said of these waterfront facilities, "They're beyond their useful design life. We're patching them left and right. They really need several hundred million dollars to put a fence around it all, demolish it and rebuild it."

Since that time, the city has made little progress catching up on decades of deferred maintenance. According to the city's most recent AIMS report, the recommended maintenance needs for the Parks Department's waterfront facilities was just \$4.3 million in FY 2016—a number that barely captures a fraction of what the coastline demands. For example, reconstruction of the historic A-Dock at the 79th Street Boat Basin cost nearly \$6 million alone, and experts agree that dozens of piers, seawalls, and bulkheads are in similar condition.³⁵ In order to prevent future collapses, the city will have to devote significantly more time and resources to assessing the condition of waterfront parks infrastructure and making preventive maintenance a priority.

PATHWAYS

The networks of roads, bridges, paths, and staircases that link visitors to different park spaces are deteriorating with age.

Bridges

Bridges play a vital role in providing access to and through city parks. When most New Yorkers think of bridges, they probably picture the massive spans over the East River. But the city's parks are home to hundreds of bridges of their own, which are essential for exploring the system's varied terrain. According to DOT's annual bridge survey, the Parks Department shares responsibility for 121 park bridges, including overpasses in Central Park and Prospect Park; pedestrian bridges over FDR Drive, leading to parks along the East River; and dozens of smaller bridges that link roadways, bike lanes, and footpaths. In addition, there are dozens if not hundreds more park bridges spanning footpaths, ponds, and streams that are not on the DOT's list and have never been cataloged.

Like parks themselves, these structures face mounting challenges that stem from advanced age. According to a number of park experts and officials, the majority of park bridges were built at or near the park's origin date, which, on average, was 73 years ago. But whereas many bridges may have seen light use in their early years, more people are crossing park bridges than ever before. The resulting wear and tear means that many of these bridges are in need of urgent repair, or will need substantial maintenance in the years ahead.

City DOT is responsible for inspecting and maintaining park bridges. Federal and state law mandates that every bridge in New York must be inspected on a biennial basis. To maintain compliance, DOT releases an annual survey, which lists every bridge's BIN number, inspection rating, and last inspection date. The Federal Highway Administration states that a bridge is "structurally deficient if significant load-carrying elements are found to be in poor condition due to deterioration or damage."

Citywide, 26 bridges—or one-fifth of all park bridges surveyed by DOT—received a rating of 3 or lower in 2016, meaning "serious deterioration, or not functioning as originally designed," per the bridge survey's language. The average rating for park bridges was a 4.42, and the majority of ratings for these bridges fell in the "4" category, which lies between "serious deterioration" (3) and "minor deterioration" (5). Ten percent of park bridges inspected received a rating of 5, and only two bridges in the city received higher ratings of 6. None received the top score of 7, or "new condition." According to officials, a bridge is usually closed if it drops below a 3 rating. The boroughs

with the largest share of deficient bridges, by far, are in the Bronx and Queens: In the Bronx, 37.5 percent of park bridges received less than a 4 rating, while in Queens, fully 26 percent of park bridges scored less than a 4.

The promenade over the FDR Drive, at East 81st Street, has a 3.143 rating, with a replacement cost of \$418 million. The famous Terrace Bridge in Prospect Park, built in 1890 by Calvert Vaux, has a 3.291 rating, and will cost \$35 million to replace. One bridge in Flushing Meadows Corona Park, on the south side of Willow Lake, received a 1 for its condition, meaning "potentially hazardous"—it had received the same rating on the survey ten years before, too.

The problem begins with a lack of regular maintenance, says John Natoli, former DPR chief engineer. "Our requests to DOT to inspect and maintain park bridges were not successful for the most part unless the bridge was already in 'good' condition," says Natoli. "Once the bridge was brought up to a state of good repair, DOT would assume inspection, maintenance, and capital responsibilities. Bridges that were in poor condition would remain responsibility of Parks to inspect, maintain, and capitally restore."

For DOT, which has its own capital budget, a bridge that is flagged as "critical" is given full funding for renovation. For the Parks Department, which relies on elected officials for funding, that process isn't as easy. "Parks lacks a sufficient capital budget, and that leads to huge issues," says Oded Horodniceanu, the president of UA Construction Associates, who has worked on a number of parks projects citywide. Unlike the city's parks, "DOT does not wait to go out and fix bridges because they're waiting for council members to give money," Horodniceanu says.

While DOT is responsible for inspecting the structural integrity of bridges, the Parks Department is tasked with flagging concerns and performing basic rehabilitation—a crisscrossing of responsibilities that can blur when deeper fixes are needed. Additional bridges that fall under state or private jurisdiction further complicate these shared responsibilities. Until a bridge is funded for inspection, or, in some occasions, "discovered" by DOT, DPR, or another agency, it is not included in the inspection survey. In other words, if DOT or DPR are not made aware of a certain park bridge's existence, then it is not routinely inspected for safety. According to officials, a number of bridges are left out of the DOT survey, resulting in years without any oversight; two bridges in Riverside Park were only recently added to the survey for inspection.



Water damage erodes the play surfaces at Hallet's Cove Park in Astoria.

“We’re the people on the ground,” says Marianne Anderson of Pelham Bay Park. “Nobody else is going to look at a railroad bridge where the bridle path is,” she says by way of example, explaining that many similar bridges are not regularly inspected. “So we have to alert people to things that we notice. Otherwise those issues go by the wayside. They’re very low priority.”

As the parks system’s bridges age, routine maintenance may no longer be sufficient to stem the decay. For example, the famous Passerelle Pedestrian Bridge, built for the 1939 World’s Fair to usher visitors from the subway to Flushing Meadows Corona Park, was temporarily shut down for emergency repairs in 2014. However, deeper structural problems and years of deferred maintenance will require a much larger reconstruction, which will end up costing the city more than \$125 million.

Based on existing estimates, park bridges face extensive capital needs. The estimated capital budget allocated to park bridges from FY 2018 to FY 2021 is \$62 million, nearly what the Parks Department spent system-wide on state of good repair needs in FY 2017.³⁶ In addition, the city’s ten-year capital strategy includes \$851.3 million for the reconstruction of park bridges citywide.³⁷ However, if all park bridges rated less than 4 were replaced, based on DOT

estimates, the total cost would be roughly \$1.1 billion. As a result, even the ten-year capital allocation may not cover the full scope of bridge problems, as the majority of existing structures near the end of their useful lives.

Stairs

The city’s varied terrain and numerous hills have required thousands of park staircases to be built over the decades. Like retaining walls, stairs highlight the challenges that New York’s topography poses to parks, whether it’s the stairs that run up the hills of High Bridge Park or Fort Tryon Park, in Upper Manhattan, or the stairs that bring you down the varying gradients of Forest Park, in Queens.

A recent survey of park staircases found numerous issues, including uneven steps, missing stones, and extensive need for pointing. On Manhattan’s West Side, DeWitt Clinton Park, a neighborhood green space that was constructed in the early 1900s, has a stairway closed to the public due to disrepair. Outside of the Bronx’s Jerome Park Reservoir, the steps in Washington’s Walk appear dislodged. “Stairs are a huge problem,” says Council Member Mark Levine. “In my district, the staircases in Fort Tryon Park, near the Cloisters, are just in terrible shape. In the northern part of Morningside Park, the stairs there are wrecked.”

In Riverside Park, several stone stairways had displaced treads, and one, at 102nd Street, which provides access to a popular soccer field, has had to be closed due to deterioration from the salt used to melt ice. Like retaining walls, water that enters unpointed joints will freeze and cause the stones to shift, resulting in new problems nearly every spring. In addition, salt applied to stairs will drain down to the concrete supports and cause them to dissolve. Charles McKinney covered this issue in the recent Riverside Park Master Plan, calling for funding of requirements contracts and a masonry repair crew that could quickly return stairs to service and eliminate the need for more expensive capital projects.

In Van Cortlandt Park, Christina Taylor says that one of the park's stairways is now unusable. "We have a set of red steps that could be a beautiful venue for performances, but they are crumbling," she adds. Nilka Martell, who works with a number of park groups in the Bronx, says the stairways on the Sedgwick Avenue side of Highbridge Park are structurally unsound and dangerous. "You're not supposed to walk there," she explains. "It's in bad shape."

Without an official count of the number of stairways in city parks, it is difficult to estimate a cost that properly addresses their state of good repair, in accordance with our findings. However, a single stairway reconstruction can cost over \$1 million, and, according to interviews with several park experts, there are hundreds of aging staircases in need of repairs.

Streets, Sidewalks, and Paths

Streets, sidewalks, and pathways are the arteries of a park, allowing visitors to circulate among facilities and landscapes. In a city where most parks are built alongside major roads, these pathways provide entry to pedestrians and help keep different types of park users safe. Yet with visits to parks at all-time highs, streets and sidewalks are seeing more vehicle and foot traffic than ever, leading to more frequent maintenance issues, deeper consequences for parks infrastructure, and a host of safety concerns.

"Where it starts to get dicey, particularly in infrastructure, are the large regional parks. In particular, paving is in very bad shape," says Adrian Benepe.

Damaged pavement on streets and sidewalks plagued nearly half of the 65 parks surveyed for this report. In Sara D. Roosevelt Park, pathways are marred by potholes, uneven grading, and sunken divots, which cause huge puddles to form and present tripping hazards. Along the Bronx River Greenway, which goes through Shoelace Park and the Bronx River Forest, cracked pavement is a widespread problem. In Brooklyn's Lincoln Terrace Park, sidewalks have been upended due to tree roots. In East River Park, a popular waterfront route for cyclists and pedestrians, it's difficult to avoid pits and potholes by the South Street

Seaport. Riverside Park has a number of uneven pathways and damaged trails, which joggers can be observed dodging on any given morning. The roads winding through Forest Park in Queens have extensive cracks and upended areas, as do those in Prospect Park. "Cracked pathways are one of the complaints we hear the most from volunteer groups," says Arif Ullah, the director of programs at the Citizens Committee for New York City. "And many times, they want to go to a hardware store, and pick up materials to patch up a sidewalk themselves. But they're not allowed to do that, obviously."

DOT maintains over 19,000 miles of streets, which are kept on a two-year maintenance inspection schedule, with a useful life of 17 to 18 years. Although the agency has fallen behind on street reconstruction in the past, a protocol exists to track conditions each year, and pinpoint problem areas. However, the Parks Department has no such system for its streets or sidewalks, nor the resources: as of July 2017, there were nine cement masons for the entire parks system, with two mason helpers assisting. Meanwhile, "highway repairer" is the most common job at DOT, with 499 employees of that job description on staff.³⁸

The estimated capital needs for park roads and streets will be \$53 million between FY 2018 and FY 2022. Yet without a sufficient capital budget dedicated to state of good repair needs, the Parks Department must rely on elected officials to fund these crucial repairs—or lean on other agencies to do more. "There are times when our partners in the park need to lay out utilities, in which case there might be narrow trenches within our road," says Janice Melnick, of Flushing Meadows Corona Park. "We use this opportunity to request full width re-pavement as mitigation for the construction inconvenience. We fight for curb-to-curb restoration of the pavement, but we don't always get it."

Marianne Anderson echoes similar sentiments for the Bronx's Pelham Bay Park. "In terms of parks infrastructure, re-paving pathways is a big issue," she says. Anderson says that issues with streets and pathways are widespread, but that it can be difficult to fund fixes. "Most funders look for a more interesting project," she says, referring to elected officials. "If you get a small amount, it does not cover much area. In Pelham, for example, I received \$100,000, which, unfortunately, will only pave a very small portion of the pathways at Orchard Beach."

The State of Recreation Centers

New York City's 53 recreation centers—including 36 membership-based centers, 11 field houses, and six community facilities managed by nonprofit partners—are home to many amenities, including indoor swimming pools, basketball courts, dance halls, and even art studios and libraries. These centers offer incredibly valuable programming, facilities, and event spaces in nearly every corner of the city, while charging community members either a modest membership fee or nothing at all. As a result, membership and attendance have been on the rise for years. In FY 2017, over 3.4 million people enjoyed their local recreation center—a 13 percent increase since 2013.⁸⁶

“The density, the proximity, the accessibility—recreation centers are a significant social asset and important pathways toward achieving health,” says Terry Huang, a professor at the CUNY School of Public Health, and internationally recognized expert on community health. “Many of them are more than just places where people go and engage in physical activity; they also offer spaces for different classes, public meetings, and educational events. It’s a community center in many ways.”

Like other park assets, the recreation centers are decades old, with nearly half built before 1950. The average year of origin for the city's recreation centers is 1946, and the average center last saw a full-scale overhaul in 2004, based on our analysis of the latest available data. In Manhattan, Recreation Center 54 and the Tony Dapolito Recreation Center were built in the 1910s. The Hansborough Recreation Center was built in 1925, yet hadn't received a major renovation until 2017. In Queens, the Sorrentino Recreation Center, built in 1921, just marked the 30th anniversary of its last major overhaul. More recently, parts of recreation centers are beginning to undergo renovations, but only after years of few, if any, improvements.

Due to both age and limited refurbishment, broken HVAC systems, roof leaks, electrical system malfunctions, and structural damage are common issues. Without sufficient maintenance, costly capital projects are needed to rehabilitate—and sometimes reopen—these centers. At least 17 percent of the city's recreation centers are in “unacceptable” condition, according to the Parks Department's own assessment in 2017. But many other centers are experiencing significant infrastructure problems, even if the overall condition is considered “acceptable” by the Parks Department.

“The recreation centers are generally old buildings. You'd get \$150,000, say, to do the roof there, but the building really needs \$14 million in renovations,” says John Natoli, former DPR chief engineer. “You're always trying to catch up. You need work in every area, and a lot of this comes back to maintenance. Really, you'd have to close the recreation centers for two to three years to truly fix them.”

One such example is Manhattan's Gertrude Ederle Recreation Center, which first opened in 1942. The center's outdoor pool closed in 1990 due to a crack then deemed too expensive to fix, and the rest of the center saw a decline in usage. After years of fundraising, much of it from outside sources, the center was closed for repairs in 2009 and reopened in 2013, after five years of construction and \$15.5 million.⁸⁷ A number of recreation centers have similar longstanding issues, and will carry equivalent, or higher, price tags to renovate.

DPR recently partnered with Parsons School of Design to complete longstanding infrastructure projects for Highbridge Recreation Center, in Manhattan, and Sunset Park Recreation Center, in Brooklyn, which hadn't received major maintenance work since the mid-1980s.⁸⁸ (Both recreation centers opened in 1936.) Issues such as mold, leaky roofs, and rust have also been reported at the Brownsville Recreation Center.⁸⁹

The city's ten-year capital strategy includes \$118.1 million planned for the renovation of “recreation/nature centers” citywide. (Separately, the renovation and remediation of the Red Hook Recreation Area, built in 1938, will cost \$94.8 million.) Yet if 17 percent of recreation centers are in “unacceptable condition”—or eight recreation centers, in total—and the average cost of renovation is around \$15 million, as shown, this report estimates the cost of restoring the city's recreation centers to be closer to \$215 million.

BUILT FACILITIES

Parks are home to a variety of aging built amenities that have fallen into disrepair, including comfort stations, playgrounds, drinking fountains, recreation centers, and swimming pools.

Comfort Stations

Comfort stations are a necessity for any park, providing free bathrooms that are open to all, access to clean water, and changing stations for parents. Due to their use, structure, and age, they require high levels of maintenance to remain functional and hygienic. According to the city’s open data portal, there are 616 “toilets in public parks” citywide, as of April 2017. At least eight are listed as currently closed. Many others are in chronically poor condition, according to numerous site visits and interviews, posing a serious challenge citywide.

“Comfort stations are an issue because of age. Most of them—the ones built in the 1930s and 1950s—have a slate roof,” says one DPR official, who spoke with us on the condition of anonymity. “They cost us so much money. If

there’s a leak, it’s a huge problem, because of how much money it is to fix it.”

In 65 parks surveyed citywide, 23 comfort stations had serious issues, including broken doors and stalls, unusable amenities, and locked facilities. Several were nearly inaccessible, or closed entirely, because of plumbing issues, and facility structures were noticeably decaying. In Harlem River Park, the comfort station was found to be unusable, with sewage on the floor. In Corona, Queens, the comfort station at Park of the Americas had cracked windows, and several stalls were missing doors. The comfort station at Charybdis Playground, in Astoria Park, has been closed since 2015, when the city discovered that the sewage from the bathroom had been draining directly into the East River for decades.³⁹ (Its reopening has since been delayed until



A bench is uprooted in Sara D. Roosevelt Park.

2020.⁴⁰) The comfort station at Manhattan’s Tompkins Square Park—one of the oldest city parks, built in the mid-1800s—is also notorious for its unseemliness; just last year, a note advised visitors to use another bathroom nearby, due to a “drainage backup.”⁴¹

Since 2003, comfort stations are among the lowest-scoring of all parks infrastructure on the New Yorkers For Parks’ Report Cards—which have documented conditions in hundreds of parks citywide since 2003—with an average score of roughly 72 and many similar issues cited. Although the features have seen a general uptick over the years, no score for comfort stations has ever surpassed a B+.

In Manhattan’s Sara D. Roosevelt Park, which was built in 1934, Kay Webster, the chairwoman of the park’s coalition, says the only bathroom was closed for years. “These are the places where we can meet over what matters; a place where you could build common ground,” Webster

explains. “But if you can’t use a bathroom that is functional and decent to go into, it just changes how much you hang out there and whether you stay.” After years-long calls for a new comfort station, in a park used daily by thousands of New Yorkers, the Parks Department says a new bathroom is now in the procurement phase.

The issues plaguing parks bathrooms affect all visitors, but are particularly vexing for caregivers and their children. When nature calls, parents may not have much time to find a bathroom for their children, and nonfunctional parks bathrooms often send caregivers racing for the nearest coffee shop or fast food restaurant.

Bronx park advocate Nilka Martell says the comfort station at Franz Sigel Park, in Morrisania, has been cordoned off by caution tape because the structure and stairs have been declared unsafe. In downtown Manhattan’s Corlears Hook Park, Michael Marino, the head of the friends group

The State of Pools

Across New York City, there are 67 public pools under DPR’s jurisdiction, 36 of which are intermediate or Olympic-sized pools. These public institutions are a refreshing escape for New Yorkers during the hot summer months, and, with extensive programming provided by the Parks Department, provide an important source of free recreation and exercise. In FY 2017, close to 1.5 million people dived in.⁹⁰

“That recreation is pivotal to the community [in Bed-Stuy], because we don’t have enough places for the multitude of children who live here,” says TJ Wilson, the vice chair of Brooklyn Community Board 3’s parks committee. “When you see people in the pool, it’s like everything is washed away. It makes standing on the line worth it.”

However, the city’s pools are aging. Close to 40 percent were built in the 1930s, during Robert Moses’s tenure as DPR commissioner, and nearly half were built in the 1970s. In the summer of 1936 alone, 11 pools citywide were opened to the public to great fanfare, using WPA funds. As a result, many of the pools are in a state of disrepair. Given the chronic lack of maintenance funding, these structures often end up requiring large infusions of capital dollars to revitalize crumbling infrastructure.

“All the 11 WPA pools, it’s not like they haven’t gotten capital investment—it’s that they’re 80 years old this year,” says Adrian Benepe, the former DPR commissioner. “You’re kind of at the end of their natural lifespan. At some point, the steel reinforcement starts to fail, which would be dangerous.”

In the early 1980s, City Hall determined that all of the outdoor public pools had reached the end of their natural lifespan, yet major renovations stalled due to financial constraints.⁹¹ In 1984, Brooklyn’s McCarren Park Pool, which was once the largest public pool in the world, shuttered due to disrepair, and lay inactive for years, its use limited to the occasional concert in the emptied space. In 2012, the pool was reopened, but only after a \$50 million rehabilitation; even then, problems reportedly persisted.⁹² In Queens, the Olympic-sized Astoria Park Pool has notable structural deterioration, both inside and out, with its high-dive closed since 1970 due to disrepair.⁹³ Both pools opened in 1936.

A majority of the city’s pools went decades before receiving a major maintenance upgrade. Smaller capital projects are underway, mostly dedicated to plumbing fixes and interior/exterior restoration. These fixes are usually needed every seven years, and each cost upward of \$1 million.

However, a constant stream of funding for this maintenance could prevent much larger capital sums, like the one needed to revive McCarren Park Pool. Without proper maintenance, a pool lasts up to 25 years before a total rebuild is needed. With 65 public pools citywide, and a natural lifespan of 25 years, this report estimates the cost of repair to be at least \$812 million over the next decade—millions of dollars more than the \$34.4 million the city plans to spend over the next ten years. Until that investment is made, one former DPR official says city pools are “held together with tape, and hope.”

there, says the comfort station has been closed for two decades. “It’s there, but it’s not functioning,” he explains. “The city has had money earmarked to refurbish and reopen it for years now. They finally started that process after much poking and prodding.”

In many cases, observers report that a lack of consistent maintenance leads to a cycle of neglect. “People just didn’t use the comfort stations because they weren’t functioning properly,” says Cedric Loftin, the district manager of Community Board 1, referring to the parks in his South Bronx district. “And then it got to the point where they didn’t function at all.”

The city’s ten-year capital strategy includes \$22.8 million for the reconstruction of comfort stations citywide. Yet in recent years, construction costs have ballooned, and a comfort station’s complete reconstruction can cost between \$1 million and \$3 million. As a result, the current budget appears to be totally insufficient. If just a quarter of the city’s park bathrooms were replaced over the next decade, the total cost would be up to \$646 million.

Playgrounds

Perhaps the most popular feature of any park, playgrounds offer families an important outlet for recreation, with significant benefits to early childhood development and public health. However, the condition of park playgrounds varies widely across the city, with some areas receiving nearly constant maintenance and others going decades without significant capital work.

While often built to last up to 20 years, playgrounds need constant maintenance to stay functional and safe. Otherwise, they can quickly become rusty, unhygienic, and dangerous. Between 2005 and 2015, 577 claims were filed against the city for playground injuries, an average of one a week, with settlements costing the city \$20.6 million.⁴² In that time, one playground alone, at Bensonhurst Park in Brooklyn, racked up four personal injury complaints and \$65,000 in settlements.⁴³

In a city known for developing some of the first playgrounds in the country, it is perhaps unsurprising that many playgrounds are aging. But the combination of decades-old playgrounds and increasing use means that many of the city’s playgrounds are either outmoded, poorly maintained, or both. Our analysis finds that at least 63 of the city’s playgrounds have not received major upgrades in over 50 years. This pattern is especially prevalent in Queens, where approximately 25 of the borough’s 66 playgrounds saw their last major renovation in the 1960s or earlier. In Brooklyn, the last major renovation date for the borough’s identifiable playgrounds, on average, was over 20 years ago, in 1996. In the Bronx, it was 1999.

A number of experts interviewed for this report say playgrounds are more likely to receive necessary capital work than other types of park infrastructure. However,

playground conditions remain a top concern among park volunteers and advocates, as quality, they say, depends on location. Manhattan is currently undergoing capital work on a third of its playgrounds; by comparison, just 12 percent of the playgrounds in Queens are currently receiving repairs. “Parks and playgrounds in low-income communities get low ratings,” says Deborah Marton, whose nonprofit group, New York Restoration Project, takes care of parks, playgrounds, and gardens in densely populated communities that lack green space. “And it’s because they’re not maintained well.”

Out of 65 park visits citywide, major issues were observed at seven playgrounds, notably those in low- to mid-income, high-density areas. Halletts Point Playground, outside of the Astoria Houses, a public housing complex, and the playgrounds at both Harlem River Park and Park of the Americas, in Corona, are visibly deteriorating, with worn-out safety surfacing and rusted amenities.

According to capital expenditure data provided by the Parks Department, and data available on its website, Grace Playground, in Brownsville, was last renovated in 1994. Skyline Playground, in Staten Island’s New Brighton neighborhood, last saw major upgrades when the park itself saw a major renovation—in 1993. Yak Playground in Sheepshead Bay hasn’t been renovated since 1990. Hoffman Park, in Elmhurst, was last upgraded in 1986.

In addition to safety issues that can result from age and deterioration, a playground built or refurbished in 1990 is not the same as a playground built in 2018. In recent years, studies have shown that more interactive play structures—like the creative, DIY-inspired “adventure playground” model—can greatly enhance the tangible effects that play can have on a child’s development.⁴⁴ But playgrounds built or renovated more than two decades ago are far less likely to incorporate these elements. With nearly 150 playgrounds largely unchanged since the 1990s, the city can do more to bring its playgrounds into the future—especially in some of its most vulnerable neighborhoods, where play structures go longer between upgrades.

The city’s ten-year capital strategy sets aside \$30.4 million for “play equipment and safety surfaces,” in addition to the playground improvements that are included in larger park renovations. But given that a playground can cost \$1 million to reconstruct, this estimate will only allow for a handful of playgrounds to be completely refurbished. With nearly 1,000 playgrounds citywide, of which 10 percent have gone at least 20 years without a major upgrade, this report estimates full renovation costs of approximately \$100 million.

LANDSCAPE

Parks landscapes face limited upkeep, with consequences for green spaces of all kinds.

Horticulture

It wouldn't be green space without the "green": horticulture—including lawns, plantings, and gardens, of which there are more than 5,000 citywide—are what make a park's landscape vibrant, adding beauty and a refreshing sense of escape to the dense urban environment. These small slivers of nature have been found to improve mental and physical health while increasing the attachment that residents feel toward their local parks.⁴⁵ Healthy horticulture is also the sign that most visitors associate with a park's quality: overgrown lawns and degraded plantings often lead to more litter, less usage, and material neglect.

However, while millions of dollars are spent each year to create new horticultural spaces citywide, their maintenance isn't nearly as well funded or widely accessible. "That means you put in the capital money, but don't have people to mow the lawn, prune the shrubs, or do something about that tree that's going to drop a branch," says Lynden Miller, a renowned public garden designer who restored the Central Park Conservatory Garden. "The next thing you know, it becomes dangerous, and then you have to wait for the council member to start the whole process over again."

As a result, several sources interviewed for this report say that horticultural care is one of the biggest challenges facing New York's parks. "When you stop maintaining a landscape, it's very difficult to bring it back. Therein lies the death spiral," says Marc Boddewyn, vice president of design and construction at Hudson River Park. "A lot of the planted areas, they can't just get mowed. They need more qualified attention, and they don't get it."

Out of 65 parks surveyed citywide, major horticulture problems were observed at 23 parks, including overgrown areas and poorly maintained or dead plantings. Several Bronx parks had lawn care issues or problems with plants: the shrubbery at Claremont Park was patchy and disheveled, while the grass was reported as "wildly overgrown" in Tremont Park. Meanwhile, on Staten Island, parts of the lawn in Tappen Park were extremely sparse, or roughly dug up.

The lawns at Rainey Park, near the border of Astoria and Long Island City, are significantly overgrown with weeds. In East Harlem's Thomas Jefferson Park, the grass is largely run down. "Regular maintenance of the grass is always a big issue," says Marie Winfield, the founder of Friends of Thomas Jefferson Park. Michael Marino, the founder of Friends of Corlears Hook Park, says the waterfront green space near the Williamsburg Bridge is

consistently overgrown and undermaintained. "Right now, our lawns look like a jungle," he says. "The park is 4.3 acres, and the park maintenance worker's mower breaks down every two passes."

In several cases, parks experts and advocates cited horticulture as the area of parks infrastructure that has recovered most slowly from the lows of the 1970s. "I always go back to the 1974 fiscal crisis to say, 'What hasn't been touched since then?'" asks Dart Westphal, a community development specialist and Bronx park advocate.

"There needs to be infrastructure maintenance before anything breaks, because horticultural systems can go down in two or three years," says Lynden Miller. "There are so many parks that I know have problems."

DPR has just 150 gardeners assigned to take care of thousands of acres of lawns, plantings, and gardens—a ratio of one gardener for every 133 acres, not counting natural areas. By comparison, San Francisco, with a population of less than 1 million, has over 200 gardeners for 4,113 acres of parkland—a ratio of one gardener for every 20 acres.

Given the paramount role that consistent maintenance plays in cultivating healthy horticulture, it is difficult to quantify the capital needs for horticulture citywide. While capital projects are dedicated to creating these green spaces, their maintenance falls into the expense budget, which has increased under the de Blasio administration. At the same time, the number of specialists providing horticulture and forestry care has not grown to meet the mounting needs.

To properly maintain all the parks system's plantings, Marechal Brown, DPR's head of horticulture, says her staff needs to quadruple. Without those resources, the agency is forced to plant less, and practice what she calls "hit and run horticulture," where roving crews make it to parks every two weeks—if that—to do basic landscaping work. "You're not able to establish and maintain healthy gardens," she says. "You're just keeping the weeds at bay, and trying to keep things visually in order."

Adequately funding horticultural work holds immense benefit for parks citywide. When Brown arrived at Morningside Park as a gardener in the early 2000s, students at nearby Columbia University were warned not to enter, due to safety concerns, and many neighbors stayed on the edges of the park. Yet after years of volunteer efforts and horticultural restoration, the park's quality improved drastically, receiving landmark status during Brown's tenure, and attracting both students from the top of the

hill and residents from below. “The minute you add some really significant horticulture to any park, whether it’s planters in a small park or playground, or large landscapes, you’re increasing the value,” says Brown. “You’re attracting people to a whole new use of the park.”

Forestry

DPR is responsible for the largest tree canopy in its history, with 666,134 street trees and an estimated four million in both forested and non-forested parkland, as of the 2015 “tree census.” New York City’s public trees provide crucial sources of shade, while reducing air pollution and mitigating the effects of stormwater runoff. But with more trees to care for than at any point in history, the city is falling behind on the needs of its canopy.

In the first two years after a tree is planted—or what’s known as the “period of establishment,” when a tree is most vulnerable to damage—the contractor is in charge of maintenance. Once this period ends, the Parks Department becomes responsible.

However, advocates say maintenance has lagged, especially for park trees, with a price tag growing as fast as the trees themselves. The mounting needs are compounded by the city’s Million Trees initiative, which added roughly 604,000 trees to public parks across the city, along with 164,000 new street trees, 152,000 trees on private property, and 78,000 trees on other public properties such as NYCHA.

Insufficient maintenance funding, coupled with limited data on trees within public parks, can have disastrous consequences, with trees falling either on property or residents. Between 2008 and 2013, tree injury claims spiked 143 percent, costing the city nearly \$30 million—with a single 2013 settlement costing more than the Parks Department’s entire tree pruning budget that year.⁴⁶ Although numbers have since dropped—down 47 percent in FY 2014, for instance, to \$15.8 million in judgment and claims against the Parks Department and the city, after the tree pruning expense budget was raised—experts say that the growing number of older park trees, which are generally less maintained than street trees, will be potentially dangerous in the very near future.

“It’s a risk management strategy,” says Adrian Benepe. “The average park tree does not get pruned, and is at the end of its life. Millions of ticking time bombs. And nobody’s even talking about it.”

Trees are pruned every seven to 10 years, seven being the industry standard. In FY 2017, the agency pruned 70,443 trees through the block pruning program—a decrease of nearly 17,000 trees from the year before—although other trees were pruned through in-house and contracted services. Citywide, 14 percent of trees eligible for pruning received care that year. The five-year trend for tree removal is down, to 3,997 trees in FY 2017. Last year,

47 percent of trees were removed within 30 days after a service request was made. But for those that did not have an emergency request for removal, the tree removal backlog is normally 12 to 18 months long.

While the agency has developed sophisticated tools for a street tree census—and fostered initiatives for tree stewardship, interagency coordination, and better procurement—a lack of maintenance threatens the longevity of an ever-growing tree canopy. Mk Moore, of Friends of Forest Park, says the trees planted in the highly forested area have increasingly fallen prey to invasive species. “We don’t have enough volunteers to get rid of them,” he says. “We’re going to lose our Million Trees, because nobody can take care of them.”

“It’s easier to get capital dollars than expense dollars,” says Nette Compton, former DPR director of green infrastructure, and a senior director at the Trust for Public Land. “That’s the reason why we can plant a million trees, but we can’t deal with the stump backlog—because of where the money is coming from, and how we spend it.”

In FY 2017 alone, over 50,000 trees were planted.⁴⁷ The city’s executive budget for FY 2018 allocated \$81.9 million for new tree plantings and the Greenstreets initiative, which will further increase the tree canopy. Yet the Parks Department has only \$12.2 million in the FY 2018 adopted expense budget for tree stump removal, pruning, and other tree care services.⁴⁸ As of this year, the agency has 58 budgeted foresters, divided by borough, but with seasonal positions included, the number is closer to 70, with another 120 budgeted positions for climbers and pruners.

By comparison, Minneapolis, which is home to 200,000 street trees and 6,000 acres of parkland, has 75 budgeted positions for its urban forestry department.⁴⁹ In New York, fewer employees are responsible for a much bigger tree population: more than triple the number of street trees, and many more on non-forest parkland totaling 14,000 acres. (An initial inventory of small and medium parks yielded over 50,000 trees, but the system has no reliable inventory for trees in large parks, although the Parks Department is in the process of conducting a survey.) Bram Gunther, co-director of DPR’s Urban Field Station and former chief of forestry, horticulture, and natural resources, says the maintenance budget would likely have to be doubled “to really maintain these trees in a way that not only increases safety, but also the services that these trees give to neighborhoods, and allows for their long-term survival.” Asked if that would then meet demand, he cautions: “The answer is no.”

MISSING MAINTENANCE

Decades of underinvestment have left the city's parks with insufficient levels of maintenance, leading to infrastructure problems down the road.

The infrastructure problems plaguing the city's parks system begin with deferred and insufficient maintenance. Nearly every parks expert we interviewed, including major park administrators in each borough, say maintenance resources are stretched severely thin, and unable to meet growing demands. The result is that existing infrastructure ends up degrading more rapidly, requiring more frequent use of capital dollars to restore.

“Too often, the M.O. in New York is ‘build it, don’t maintain it, and then build it again,’” says Council Member Andrew Cohen, whose Bronx district includes Van Cortlandt Park. The problem persists, in part, because the city is more willing to spend capital dollars than expense dollars, making it easier to fund building or replacing park amenities, rather than dedicating funds to maintain the infrastructure that already exists.

One consequence is that problems are inadvertently allowed to grow, resulting in more complex issues—and bigger bills—down the line. For example, the wooden pilings that formed the edge of East River Park received no maintenance between their installation at the beginning of World War II and 1996. Eventually, they degraded so severely that the entire platform had to be shut down and rebuilt, a mammoth task which took roughly a decade. Likewise, the lack of maintenance for Willow Lake in Flushing Meadows Corona Park means that whole sections of the park are flooded every time it rains. After nearly eight decades of worsening conditions, nothing short of a complete dredging operation can fix the problem.

“When operating funds are insufficient, all sort of ongoing maintenance gets deferred. That’s what you’re seeing,” says former State Senator Daniel Squadron, who has long focused on the issues facing the city’s public parks. “The quality of upkeep that there’s funding for is just insufficient.” For the past ten years, the maintenance and operations budget for the city’s parks—which comprises the bulk of the agency’s expense budget—has amounted to, on average, less than half of the agency’s annual capital budget. In total, the expense budget for the city’s parks hovers around 0.5 percent of the city’s overall expense budget, even as park usage and construction has skyrocketed.

Deferred parks maintenance needs have increased 80 percent over the past decade, from nearly \$19 million in FY 2006 to \$34 million in FY 2017, as tracked by the Office of Management and Budget.⁵⁰ In FY 2017, however, just 12 percent of that request was funded—which has been the average for the past decade. Overall, DPR’s maintenance and operations budget has grown from \$233 million in FY 2006 to \$306 million in FY 2018, a 31 percent increase. However, after adjusting for inflation, the increase is a much more modest 6.6 percent.

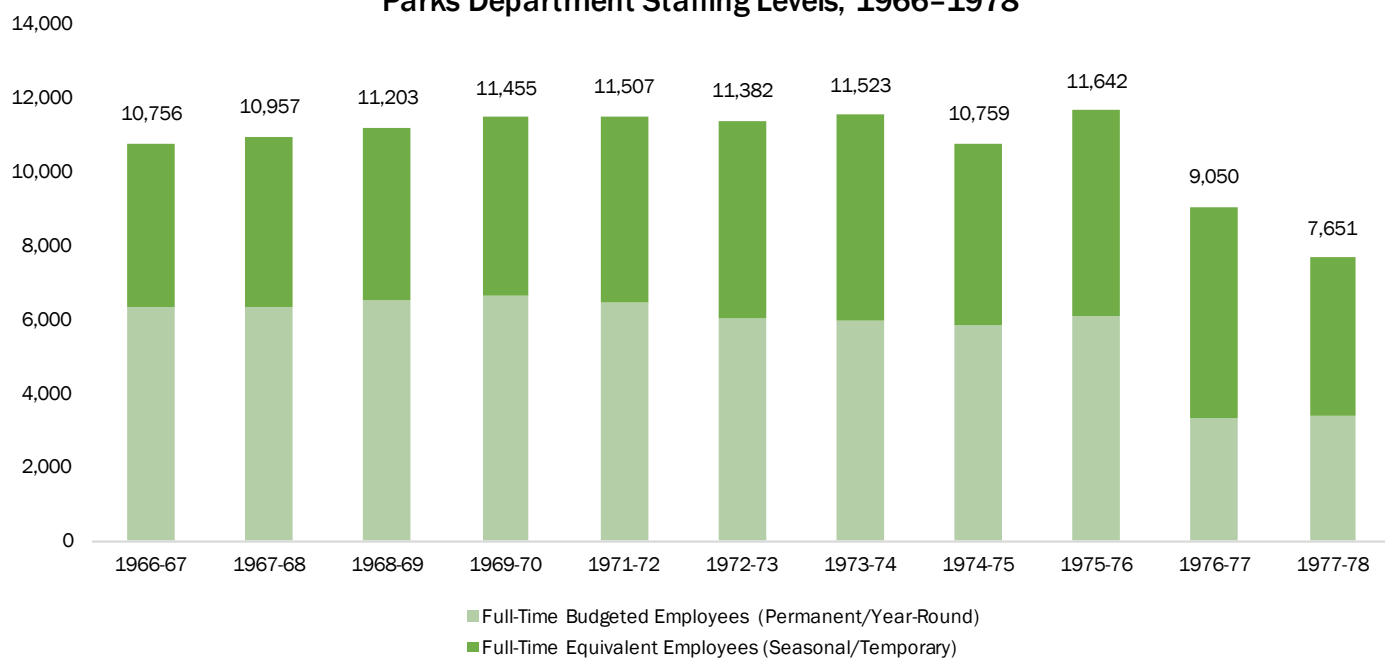
Given the system’s lack of sufficient maintenance funding, as well as state of good repair capital dollars, the city’s parks end up relying on community board requests for much-needed repair and capital work. But the majority of these requests also go unfunded. The Register of Community Board Requests documents funding requests made to city agencies by the 59 community boards citywide, making it a useful source of information on community-identified infrastructure needs in neighborhood parks. In FY 2017, 245 requests were made for expense funding in parks, but just 7 percent were funded. Likewise, 491 requests were made for capital funding, with only 19 percent receiving funding.⁵¹ Both totals represent some of the lowest acceptance rates for any category of public spending.

The problem with competing demands on the system’s modest maintenance budget comes into focus at the borough level. Queens, which has about 6,600 acres of city parkland for a population of more than 2.3 million—six times larger than Minneapolis—received just \$27 million, and has 312 employees.⁵² At \$22 million, the Bronx, a borough that is 25 percent parkland, received less maintenance funding than Queens, Brooklyn, or Manhattan. With 7,200 acres of parkland—more than the entire city of Minneapolis—Staten Island parks received only \$12.4 million for parks and playground maintenance and 154 full-time employees in FY 2017. Local Law 154, which was passed in 2015, will require the Parks Department to release the maintenance spending figures—average weekly cost, and hours—for each park citywide, to shed light on equity issues. (The first report focused on the city’s 100 largest parks.)⁵³

In addition to insufficient funding for routine maintenance, the Parks Department has seen its full-time staffing levels diminish significantly over time. Since the 1970s fiscal crisis, DPR’s staffing headcount—including both full-time and full-time equivalent positions—has dropped from more than 11,600 to just over 7,600. As a result, the Parks Department’s day-to-day operations have largely shifted from the “parkie” system—fixed post, full-time employees—to a seasonal workforce of temporary employees with limited experience. For most parks, this means that few, if any, maintenance staffers are dedicated to the park year-round, and many will not return from one season to the next. At the same time, the ranks of skilled workers and tradespeople are particularly thin for a system as large and complex as New York’s.

The seasonal model largely depends on participants in the Parks Opportunity Program (POP), a transitional employment program that provides skills training and paid work experience. POP employed approximately 5,000 public assistance recipients

Parks Department Staffing Levels, 1966–1978



Source: Center for an Urban Future analysis of City of New York Authorized/Executive Budgets, accessed from the Municipal Library. The Executive Budget from 1970-71 was missing from the library archive and therefore has not been included.

in FY 2017, according to the Parks Department, of which 1,608 were full-time equivalents and the rest were temporary, seasonal workers.⁵⁴ Parks administrators and advocates say that an overwhelming reliance on seasonal workers places a significant strain on supervisors who are responsible for constantly training and retraining a transitional workforce, which takes managers away from their other responsibilities and limits overall productivity.

In addition, the system makes it difficult to build long-term relationships between maintenance staff and park users, which means that problems that parkgoers are experiencing can go unnoticed by parks administrators—until they get significantly worse. By that point, however, problems that could be resolved with routine maintenance may end up requiring intensive capital work. Likewise, these short-term placements mean that institutional knowledge is lost from year to year, as few temporary workers will return to the parks in which they were trained.

In addition to the challenges of relying on a temporary workforce, parks maintenance suffers from a lack of skilled workers. According to staffing figures provided by the Parks Department, the agency employs fewer than 150 gardeners for nearly 20,000 acres of parkland, including 50 who are not part of the department’s operating budget, but rather funded annually through the Community Parks Initiative. As a result, more than one-third of these crucial maintenance positions are not permanent and could be nixed as part of the annual budget negotiations. (The data set did not include POP participants, but these workers are usually tasked only with basic upkeep.)

Forest Park in Queens, a 538-acre woodland park, only has two full-time gardeners—who are also responsible for district-wide park needs—and a landscape management manager.

The district that includes Fort Tryon Park in Manhattan, which was originally designed with 17 gardeners in mind, employs just six today. The Bronx’s Community Board 8—which spans multiple parks in Riverdale and Kingsbridge—doesn’t have any dedicated gardeners. On a visit there for this report, the parks’ horticulture was in noticeably bad condition. The tree pits in Ewen Park are infested with weeds. In Henry Hudson Park, plantings by volunteers thrive, while lawns sit overgrown. Around Jerome Park Reservoir, shrubs grow over pathways. “It’s being maintained by residents like myself,” says Dart Westphal, a Bronx parks advocate. “Lovely things were put in by great designers, but they didn’t expect that nothing would happen [when it comes to maintenance].” Borough-wide, the agency has 28 gardeners, as of April 2018, or one for every 252 acres, although some gardeners are solely dedicated to Van Cortlandt Park restoration and the Arthur Ross Citywide Nursery.

A lack of sufficient staff dedicated to specific skilled trades beyond gardening means that other forms of skilled maintenance, like plumbing or electrical fixes, can go unaddressed for months.

“The majority of the maintenance force now is cleanup, while the minority is technical trades,” says John Natoli, former DPR chief engineer. “They’re a lot of operators, like truck drivers and mowers, and the fleet of equipment is good. But that seasoned supervisor that would have staff go out and replace 200 feet of collapsed sewer line, five feet down, you don’t get that.”

In total, there are 39 plumbers for the entire parks system, with serious deficiencies across certain boroughs. For example, Brooklyn, with a population of 2.6 million people and 411 parks, has just five plumbers. Most plumbers are assigned

Parks Department Staffing Levels, 2002–2019



Source: Center for an Urban Future analysis of City of New York Authorized/Executive Budgets, accessed from the Municipal Library.

citywide, and are responsible for repairs on drinking fountains, boilers, comfort stations, and sewer lines. During the summer, park administrators say plumbers are busy maintaining the crowded beaches, leaving much-needed maintenance to accumulate. If a pipe breaks over the winter, too, this could delay work. In Prospect Park, according to Tupper Thomas, the park’s long-time former administrator, a bigger fountain can require work twice a week. “Just that alone takes at least half a day,” she explains. “With only five plumbers for all of Brooklyn? Think about that.”

The Parks Department’s waterfront facilities have just three marine mechanics and one carpenter covering 148 miles of coastline, and there are just 11 maintenance staffers in total assigned to marinas. For the parks system’s miles of power lines and countless fixtures, there are just 27 electricians, and one supervising electrician. By comparison, Chicago, with less than a quarter the parks acreage of New York and a population of 2.7 million, had 32 electricians on staff last year.⁵⁵ Likewise, as of July 2017, there are just nine cement masons and two mason helpers for all parks citywide. Meanwhile, the Battery Park City Park Conservancy, with a maintenance budget of \$5 million, has one full-time mason and one mason’s helper to care for its 25 acres.

To clear catch basins, the Parks Department has one truck for the entire parks system. Prospect Park, according to Susan Donoghue, has 3.5 miles of roads, all of which have catch basins that need to be constantly cleared, or else leaves and sand pile up. “Catch basins were historically under the purview of DEP for cleaning and maintenance,” she says, “and at some point that responsibility was transferred to Parks without the commensurate equipment or expertise for handling that increased burden.”

Underfunding maintenance has ripple effects, whether it’s an amenity lost to underinvestment, or a park fallen into disrepair. It also has a larger impact on a community’s access to vital green space, and how that space is used. Angela Tovar, director of community development at The Point CDC, which advocates for economic revitalization in the Hunts Point district of the South Bronx, says the South Bronx Greenway—a vital source of recreation and exercise in an area with little parkland, and poor public health—has become an eyesore without the resources to maintain plantings. “Even now, it’s overgrown, and just sits there,” she says.

With a slimmed-down maintenance operation, the Parks Department increasingly relies upon volunteers for basic upkeep, in addition to over 50 public-private partnerships. In FY 2017, 27 percent of parks had an associated volunteer group, with over 50,000 volunteers involved in park efforts.⁵⁶ Yet volunteers say they can only do so much, especially in low-income communities, where money and time pressures are constant. Basic maintenance should be the city’s job, they say—not theirs. “I’m not asking people to come out on their free time to strip benches and repaint them,” says Marie Winfield of Friends of Thomas Jefferson Park. “I’m just not. Those basic services to make sure the elements of the park are usable should be the Parks Department keeping track of these things, and making sure they’re maintained.”

“There are lots of good reasons why new infrastructure should go in,” says Lynn Kelly of New Yorkers for Parks. “But if you don’t have the staff to maintain it, and there’s no way we can marshal enough volunteer efforts for it, it’s going to be a problem.”

LOW PRIORITY

Even as new parks are created, infrastructure needs of the city's existing public parks have been low on the agenda for decades.

Historically, parkland development in New York has been divided into three different phases: the Olmsted era, when larger parks, like Central Park and Prospect Park, were developed; the Robert Moses era, when funds from the Works Progress Administration helped build smaller parks and playgrounds across the five boroughs, to less wealthy districts; and the Koch era, when the city's parks were revived with a ten-year capital plan then worth \$750 million—or \$2.2 billion, in today's dollars—and conservancies were established for flagship parks. In addition, the Bloomberg era saw the creation of several new destination parks, including the High Line and Brooklyn Bridge Park. However, nearly every person we spoke with for this report says that New York's parks system has never received sufficient funding to preserve and upgrade its existing infrastructure, creating a constant struggle for dollars.

Over the past four decades, expense spending on parks has decreased from 1.3 percent of the overall city budget to just over 0.6 percent; a public awareness campaign once called for parks to receive at least 1 percent of the city's overall budget—a level it last received in the 1970s.⁵⁷

In times of fiscal strain, the city's parks system often bears the brunt of budget cuts. “Whenever there are budget cuts, NYC Parks is always the first to take it on the chin,” says Denise Richardson, of the General Contractors Association. As a result, New York City's parks have been reliant on a mix of federal and private dollars to help shore up the system's infrastructure and invest in maintenance and capital needs.

Since its inception, the Parks Department has relied on federal funding to build or maintain its distressed system. In the late 1800s, Congress helped revive Central Park, merely 30 years after it was built. In the late 1930s, WPA funds expanded the parks system significantly and paid for dozens of recreation centers, pools, and other structures. Beginning in the late 1970s, the Urban Parks and Recreation Recovery Program helped fund green space in low-income communities. More recently, the agency has received federal Community Development Block Grants for its vast array of community gardens and hundreds of millions of dollars in FEMA funding for shoreline resiliency projects.

“That's four different occasions over the last 120 years

where you've seen this infusion of federal money,” says Dart Westphal. However, these programs have continually come under fire in Washington. The Urban Parks and Recreation Recovery Program was discontinued in 2002. Meanwhile, the Trump administration's 2019 executive budget proposes eliminating the Community Development Block Grants completely.

Given low overall levels of expense funding and diminishing federal support, the city has turned to private dollars and contractual arrangements to help pay for park operations and improvements. To fill in spending gaps, at least 50 organizations—conservancies, development corporations, and public-private partnerships—take care of parks citywide. Their agreements with the city vary, in terms of both revenue sources and what they can fund. In some cases, such as Brooklyn Bridge Park and Bryant Park, the city has ceded full responsibility to nonprofit organizations and private development corporations, which can use payment in lieu of taxes (known as PILOT) and ground lease fees to pay for operations and projects. With other models, like the Central Park Conservancy, money for operations and projects is privately fundraised, or partially paid for through concessions. For example, the Madison Square Park Conservancy's contract with the city allows it to use part of a concession fee from the Shake Shack on its property, which makes up about 10 percent of its \$3 million budget, as of 2013.⁵⁸ At the same time, most of the Parks Department's concessions fees flow into the city's general fund, where they are no longer earmarked for parks' needs.

In some cases, larger one-time deals have been negotiated with terms that can benefit parks, although these projects have had mixed results. A deal in 2015 allowed the U.S. Tennis Association to expand Arthur Ashe Stadium, in exchange for funding the Flushing Meadows Corona Park Alliance.⁵⁹ In the Bronx, new parks and improvements were included in the Yankee Stadium expansion plan, although they were slow to arise as the stadium and parking lots were constructed first.⁶⁰ The construction of the Croton Aqueduct filtration plant, which took over acreage in Van Cortlandt Park, was offset by a \$200 million investment in park improvements in the Bronx.⁶¹

While private dollars have been a boon to many heavily frequented parks, this reliance has contributed to systemic

inequities, as public spending fails to keep up. “Parks used to say that the benefit of having a conservancy is that parks dollars can go further, because they can be used for other parks,” says Susan Donoghue of Prospect Park Alliance. “But I don’t think that’s the reality on the ground. There isn’t enough money for all the other parks in the system, and that’s part of the problem.”

The Central Park Conservancy has a maintenance and operations team of 125 people for 840 acres, with an annual operating budget of \$52.3 million in FY 2016, 75 percent of which is contributed by the conservancy. In 2012, John Paulson, the billionaire investor, donated \$100 million to the conservancy—equivalent to one-fifth of the Parks Department’s entire expense budget today. Other parks with private streams of funding have flourished. Battery Park City Parks Conservancy, for example, has close to 25 gardeners for its 36 acres. “We were weeding by hand,” says Marc Boddewyn, former director of maintenance for Battery Park City’s parks, noting that other parks could not afford that degree of hands-on maintenance.

Conservancies elsewhere do not support flagship parks to the same degree as those in wealthier neighborhoods. Flushing Meadows Corona Park has 29 full-time, year-round workers on staff, including three gardeners—one of which the newly minted Alliance paid for—for all 897 acres. The Van Cortlandt Park Conservancy had a total operating budget of \$335,539, for an area nearly 400 acres larger than Central Park⁶². During its peak season, Pelham Bay Park—the city’s largest—has a core team of 20 full-time workers, and an additional 40 to 50 POP workers. On an average summer afternoon, some 100,000 people visit Orchard Beach. However, Pelham Bay Park does not have a conservancy.

“What I would say is that New York has figured out how to pay for signature parks, through creative public-private partnerships,” says Erin Lonoff, a director at HR&A Advisors, who has worked on feasibility studies for parks projects nationwide. “But the city hasn’t figured out how to as effectively pay for these neighborhood parks that aren’t destinations, but still equally as important.”

In 2014, then State Senator Daniel Squadron proposed a “neighborhood alliance fund,” where conservancies would contribute 20 percent of their budgets to smaller, neighborhood parks.⁶³ Although the proposal faltered, it helped to spark a debate over philanthropy and parks equity. Since then, conservancies have voluntarily committed \$15 million to other city parks, with initiatives that include training in horticultural and trash collection management, as well as the sharing of maintenance resources. But those commitments face existing barriers, according to administrators on both sides of the funding equation.

Stephanie Lucas, deputy director of horticulture and park operations at Madison Square Park Conservancy, says the commitment made to Herbert Von King Park, in Bed-

Share of All Parks Receiving Capital Work, 2017

Borough	Parks by Size	No. of Parks Receiving Capital Work	Percentage
BROOKLYN	178 small parks	33	19%
	212 medium parks	100	47%
	16 large parks	11	69%
MANHATTAN	164 small parks	26	16%
	105 medium parks	36	34%
	9 large parks	8	89%
QUEENS	176 small parks	17	10%
	183 medium	42	23%
	28 large parks	17	61%
STATEN ISLAND	30 small parks	3	10%
	87 medium parks	18	21%
	27 large parks	12	44%
BRONX	150 small parks	34	23%
	128 medium parks	69	54%
	13 large parks	12	92%

Source: Center for an Urban Future analysis of capital work records provided by the Department of Parks and Recreation (as of Q3 2017). Small parks are defined as <1 acre; medium: 1-50 acres; large: 50+ acres.

Stuy—in which financial and technical assistance would be given to establish a conservancy there—is limited by existing resources. Madison Square Park, with its two gardeners and one turf manager, can afford a daily lawn rotation to alleviate overuse, but Herbert Von King Park cannot. “They also don’t have irrigation,” she adds. “So it’s a much bigger issue.”

Maura Lout, director of Central Park Conservancy’s Center for Urban Park Management, which helps train park workers across the city and around the world, says her group faced similar limitations in Astoria Park. “Staff are overburdened, and don’t have access to the right kind of equipment,” she says. “That lawn is heavily used, and if you really want it to be a Sheep Meadow kind of lawn, you would need an irrigation system. But in that equation, you’re also taking that asset offline for at least a year.”

According to Susan Donoghue of Prospect Park Alliance, these commitments run the risk of helping one park at the expense of another, rather than improving all parks in tandem. Her park’s annual budget of \$11 million has to maintain more than 580 acres and accommodate at least 10 million visitors each year. “The issue comes down to the Parks Department budget,” she says, “which needs to be expanded in order to take care of all the ongoing maintenance responsibilities within the system.”

PIECEMEAL FUNDING

DPR's reliance on discretionary spending for capital projects makes systematic planning impossible, and creates an uneven system for funding state of good repair needs.

New York City's parks are almost entirely reliant on elected officials for essential infrastructure funding. In FY 2018, about 98 percent of parks infrastructure projects are funded through individual capital project allocations from elected officials, known as discretionary spending.⁶⁴ This means that the Parks Department must rely on the 51 city council members, five borough presidents, and the mayor to pay for vital park renovations and upgrades. The result is an inefficient—and insufficient—system, which does not afford the Parks Department the opportunity to direct resources where park experts believe they are needed most.

“If you look at the capital budget, everything is discretionary—earmarks from the City Council, a little bit from the Mayor's Office, and a tiny, tiny part from the borough presidents,” says Ryan Yeung, an associate professor of finance at Hunter College, who specializes in public finance. “There's no state or federal mandate for parks.”

Inevitably, this approach has negative consequences for parks infrastructure. The first problem is one of prioritization: what DPR officials need and elected officials want for a park does not always align. Experts say that elected officials, understandably, prefer projects that deliver a new amenity to their constituents within their term. “No elected official wants to fund something unglamorous, like, ‘Let's replace all the drainage and water supply pipes in Flushing Meadows Corona Park,’” says Adrian Benepe, former DPR commissioner. “Or, ‘Let's repair all the problematic retaining walls in Riverside Park.’”

“This infrastructure doesn't get addressed because it costs so much money,” says Angelyn Chandler, former DPR capital team leader. “And it's much easier to put in that basketball court, or add a few more benches. It costs so much less to do that.”

The system is particularly problematic for the exact types of invisible infrastructure that are most in need. Hidden out of the public eye, drainage systems and retaining walls are rarely top of mind for constituents. As a result, elected officials often fund projects to address needs or concerns that the public is more aware of, rather than those that may be most detrimental to the park. Angelyn Chandler says this creates “a series of tradeoffs,” where the Parks Department has “to start making choices. If everyone's got to have that basketball court, but you know that you have to deal with the drainage, you're likely to cut things out,” she explains.

In addition, the skyrocketing capital construction

costs of park improvements mean that elected officials are hamstrung in their abilities to pay for larger infrastructure fixes in a timely manner. Several elected officials must be corralled to fund high-cost infrastructure projects, like drainage systems, or retaining walls, that can far exceed the discretionary funds available to any one official. As a result, necessary infrastructure spending can be put on hold for years at a time. “We have one council member,” says Christina Taylor, of Friends of Van Cortlandt Park. “He can give, at the most, \$1 million a year. That's not even an entire capital project—it costs \$3 million just to do a bathroom. So it takes three years just to get that bathroom funded. If we were to complete our 20-year master plan at that rate, it'll take us at least 100 years. By then, we'll have new issues.”

Meadow Lake, in Flushing Meadows Corona Park, hasn't seen sufficient infrastructure investment or maintenance since it was built 75 years ago, according to park officials, and faces serious issues of water quality and flooding. “We've already spent \$15 to \$20 million on the lake, but there's no budget yet to dredge the lake, which is what really needs to happen,” explains Janice Melnick, the park administrator. “Since it's piecemeal, we get small sections done, but then the water floods other parts. It'd be \$100 million to fix the whole thing.” (The city's ten-year capital strategy includes \$80.5 million for all projects across Flushing Meadows Corona Park.)

Some elected officials are more willing to spend capital dollars on parks than others, which lets parks in certain districts go unfunded for years, while others thrive. This divide can best be seen in large parks that overlap with several council districts: sections which receive significant capital dollars from local leaders are in noticeably better condition than those that do not. For example, as one parks expert noted, the southern side of Forest Park, in Richmond Hill, is notably distressed, with cracked tennis courts and clogged drainage. However, on the northern side, by Forest Hills, similar infrastructure is in a much better state of repair. Ultimately, the role that elected officials play in deciding which park projects are funded inevitably politicizes the Parks Department's planning. “Council members' dollars are decided by the speaker,” says Charles McKinney, DPR's former chief of design. “If the council member is an agitator, or doesn't get along with the speaker, that could affect how much money their parks get.”

Socioeconomic pressures can also affect the quality of a

The system is particularly problematic for the exact types of invisible infrastructure that are most in need.

district's parks, as council members are expected to decide between funding parks and other essential community assets. "In the lowest-income neighborhoods, you usually have the biggest problems," says Tupper Thomas. "Because there are so many needs in that neighborhood, the council member doesn't always pick parks as something they're going to work on."

Our analysis of data provided by the Parks Department lends credence to this statement. Spanning a period of 20 years, the Parks Department completed an average of 91 district-specific projects and invested an average of \$41 million in each of the 51 Council districts. Yet the benefits of these discretionarily funded projects are felt unevenly across each borough. For instance, Brooklyn's District 45—home to Midwood and Flatbush—has seen 36 district-specific projects, totaling \$11 million, since 1996. By comparison, District 33, which includes Williamsburg and Dumbo, has benefited from 103 projects during the same period, totaling \$118 million.

Several neighborhoods in Queens also suffer from significant capital neglect, particularly when compared with more affluent districts. Across four Queens council districts—covering Elmhurst, Jackson Heights, and Jamaica—parks have seen less than \$50 million in capital work since 1996. That's barely 40 percent of the investment made in Manhattan's District 2 (Gramercy Park, Kips Bay, and East Village), which totals nearly \$125 million.

Manhattan itself serves as a tale of two boroughs. District 1, which includes the Financial District, Chinatown, and the Lower East Side, is above average, with \$134 million for 134 capital projects since 1996. Yet at the top of the borough, in District 10, parks received less than 12 percent of that total during the same period—approximately \$16 million for 43 capital projects.

In fact, size also matters: small parks (less than one acre) are much less likely to receive investment than medium-sized parks (one to 50 acres) and large parks (more than 50 acres). Just 16 percent of small parks are undergoing capital work this year, compared to 39 percent and 65 percent of medium and large parks, respectively. These size discrepancies are even more pronounced at the borough level; for example, on Staten Island, only three of its 30 small parks are receiving any kind of capital work today.

In the past, the Parks Department had a larger capital budget dedicated to repairs and upgrades at the

commissioner's discretion, which, according to a number of the parks experts we interviewed, allowed for more efficient planning around infrastructure needs. According to several experts we interviewed, under Mayor Rudy Giuliani, the agency's capital discretion was heavily devolved to elected officials, and the agency's own capital budget reduced over time.⁶⁵ It has increased significantly, however, under the administration of Mayor de Blasio through the Community Parks Initiative, Anchor Parks Initiative, and Parks Without Borders programs. But capital funding for neighborhood parks is projected to fall again precipitously after 2019, unless these programs are renewed each year or a new state of good repair capital fund is created.

Under Commissioner Henry Stern, in the 1980s, what are known as "requirement contracts" were developed to accommodate quick-fix maintenance jobs. "Parks had millions for boilers, asphalt, and play equipment, and it worked pretty well for a while," says John Natoli. But eventually, he says, these contracts were absorbed into the much-maligned capital process, which both slowed the pace of improvements and restricted use. "What 15 parks are you going to put asphalt in with this money?" he asks, hypothetically. "Now, you can make a reasonable estimate of which ones you're going to do. But then, two months in, there's a collapse in a park that's not on the list, and you can't go there."

Capital rules also generate inefficiencies in other ways. For park employees to acquire even the most basic equipment, they must be capital eligible, which requires a minimum allocation of \$35,000. To meet these requirements, orders are bundled, enlarged, or not made at all. "If you just need a truck, you'll need to ask for a big, big truck, even if that's not necessarily what you want, or what actually works," adds Charles McKinney. These guidelines also limit which outside parks groups can receive money, and what they can do with it. Fundraising for capital projects is often easier, according to park administrators and advocates, than fundraising for maintenance, but capital dollars cannot be repurposed to maintain existing infrastructure. As a result, even when elected officials fund parks projects with discretionary dollars, the money is not always meeting the park's most pressing needs. "If we get money from the city to do capital work, we're not allowed to use it for anything else, because of the capital and expense restrictions," says Deborah Marton, of the New York Restoration Project. "That's the essence of this problem."

DATA DEFICIENCY

Better data can improve how parks infrastructure is assessed and maintained, but New York has fallen behind other cities in data collection and analysis.

Over the past decade, New York has aggressively expanded efforts to improve decision-making and increase transparency through better data collection. Advances in data analytics have reshaped nearly every government function, from fighting fires to reducing traffic congestion, and NYC Open Data serves as a model repository for public data generated by the city. However, the Parks Department has fallen far behind other parks systems nationwide—and other New York City agencies—when it comes to leveraging the power of data.

As of today, data on the condition and needs of the parks system is fragmentary at best, although the Parks Department is making a concerted effort to increase data gathering and analysis. Many parks assets and structures are not tracked by any existing database and information on the condition and location of various infrastructure elements is highly generalized. This lack of data inhibits the city's ability to plan and prioritize among the parks system's many infrastructure needs.

Without detailed data on the condition of parks infrastructure, it is much more difficult to focus on the areas of greatest need, rather than the areas with the loudest advocates. Likewise, better data could help ensure that infrastructure problems are addressed, and upgrades scheduled on a routine basis, without waiting for issues to snowball into crises.

Today, it is impossible for the Parks Department to present a complete picture of the system's needs or help policymakers understand how to prioritize different projects. The system lacks accessible data on the age and condition of most infrastructure, and tracing the history of capital work in each park can require pulling paper files from a central archive. Throughout this report, our researchers relied on dates recorded in the history pages of the Parks Department's website, as there is no single, complete source of information on park origination dates or the dates of previous renovations.

Better data on parks could transform how infrastructure projects are funded and planned, ensuring that maintenance schedules are routinized across infrastructure classes, emerging problems are tracked and mitigated before they get worse, and budget requests are linked to specific, documented needs. With a complete inventory of needs and conditions, based on accurate data, the Parks Department could make a clear case for which parks improvements are most critical at any given time. "In our requests, it just can't be more money that gets put into a general fund," says the Parks Department's Bram Gunther. "It needs to really be structured through resource management, not only from the technical side in the field, but also the Geographic Information System, analytics, and planning side."

DPR has collected data for decades, but its approach remains rooted in a legacy system. In 1984, the Parks Department launched the Parks Inspection Program, which dispatches surveyors with mobile devices to conduct 6,000 park inspections each year. Based on the surveyor's assessment of structural, landscape, and cleanliness attributes, ratings come back either unacceptable or acceptable, and are then published online. Between 1994 and 2006, the rate at which city parks were deemed acceptable significantly increased from 39 percent to 88 percent.⁶⁶ Since 2014, the acceptable rate has dropped slightly from 87 to 85 percent.⁶⁷

Although these ratings portray a system that appears to have improved dramatically, they are not intended to provide an engineering-level structural assessment and do not capture the full state of parks infrastructure. Invisible infrastructure, such as drainage systems and retaining walls, is not assessed. The maintenance required to protect key structures and landscapes is not factored in. In some cases, parks rated "unacceptable" may have only needed some cleaning, whereas parks rated "acceptable" may have major infrastructure problems but no visible blemishes. Without sufficient funding to tackle larger issues, responding to a poor inspection can mean making minimal aesthetic improvements without addressing the underlying problem. "An 'unacceptable' can be a very easily solved problem, or something that could prompt a capital project," says Adrian Benepe. "We'd get an 'unacceptable,' and we'd say, 'I can tell you what's unacceptable, and until we get a million dollars, it's going to stay unacceptable.' It just can't be resolved in normal maintenance and operations repairs."

In response to these perennial concerns, the agency has recently initiated its first-ever system-wide needs assessment, which will catalog the age and capital needs for 50 infrastructure types, and track what has already been spent. However, the Parks Department has only obtained funding to analyze four of the 50 infrastructure types—comfort stations, synthetic turf fields, retaining walls, and recreation centers—and, as of this report's publication, this first round of analysis remains unfinished. After initially funding a consultant to start the project, OMB permitted the Parks Department to hire four more analysts to conduct the assessment—three engineers, and one cost estimator. At this rate, the assessment could take 15 to 20 years to complete, officials say.

Without a full-scale needs assessment, even the most basic data is limited: for example, as of this report's publication, it is impossible to say how much it would cost to bring every comfort station in city parks up to a state of good repair. In some cases, even the locations of various infrastructure

elements are only loosely known: for example, one DPR official says only that the agency had “a good idea” where the parks system’s retaining walls are located. Likewise, the city’s Asset Information Management System is particularly limited when it comes to tracking parks assets. As is the case citywide, AIMS does not include assets with a replacement cost of less than \$10 million, and excludes “most equipment,” “landscaping or outdoor elements,” and “aesthetic considerations”—all categories that are essential for maintaining parks infrastructure, but left out of the existing database. To its credit, however, the Parks Department’s Capital Project Tracker greatly increases transparency by mapping and recording the current status of more than 500 active capital projects at any given time. But the tracker still lacks data on projected and actual cost overruns, the dates when projects were fully funded and closed out, and the reasons behind specific delays.

Another bright spot for parks data is the Parks Department’s street tree system, with tools like the Tree Census and online tree tracker capable of labeling trees that need immediate pruning or removal. However, when

it comes to other forms of horticulture, a system-wide map is still in the preliminary stages; such a map exists only for Manhattan. Once it is completed—although an end date is not known—a tool to monitor horticultural management is slated to follow.

Better data on the city’s public horticulture, says Kim Mulcahy, former DOT deputy director for highway landscape maintenance, could better direct resources, and connect capital projects to operations. “You have a perennial garden,” says Mulcahy. “How many square feet is it? How many hours a year does it take? What are the costs per square foot? What job titles do you need?”

“We need to be able to say, ‘We have this many acres of property, and this many of them require a certain amount of horticulture maintenance needs,’” says Marechal Brown, DPR’s director of horticulture. “Maybe there are four different grades of maintenance requirements, from once a season to once a week, or every day. We need to know what that is. Right now, it’s ‘How do you know?’ We say, ‘We just know.’ Nobody’s going to be able to believe that.”

The State of Natural Areas

While most New Yorkers are familiar with many of the city’s public parks and playgrounds, one-third of the city’s parkland, or some 10,000 acres, is considered natural area—deep woodlands, wetlands, and ecological systems that are much older than any skyscraper, like the forests along the Bronx River, or the native trees and plants that ring Staten Island’s Greenbelt. These areas provide a crucial habitat for city-dwelling plants and animals of all kinds, as well as unique spaces for residents to experience nature within the urban environment.

Over the years, the Parks Department has dedicated more resources to the conservation and restoration of natural areas—improving trails, removing invasive species, and clearing vines—namely through the agency’s Natural Resources Group (NRG), and the creation of the not-for-profit Natural Areas Conservancy, in 2012. However, natural areas only receive PIP ratings where there are trails, leaving a third of the city’s parkland with only limited inspections. Without more robust data, little is known about the needs of these ecosystems, hindering a systematic approach to restoration, preservation, and maintenance.

In its place, the Natural Areas Conservancy has pushed an exhaustive research effort to map New York’s natural areas, highlight their needs for preservation, and formalize trail systems.⁹⁴ “There turned out to be over 300 miles of trails, which are, in general, really horribly laid out, and were never actually designed,” says Sarah Charlop-Powers, executive director of the Conservancy. “If you think of the idea, ‘If you don’t measure it, you don’t value it,’ then [having inspection ratings] would be simple, and have very significant impact.” In April 2018, the Conservancy and the Parks Department followed up on that idea by announcing the Forest Management Framework, a laudable, unprecedented plan to preserve and care for the city’s urban forests over the next 25 years.⁹⁵

Yet limited resources have largely inhibited data collection. Pelham Bay Park—which has a wide swath of forest, wetland, and rock formations in its 2,771 acres—has just one natural areas manager. “It’s not anywhere near what we need for natural areas upkeep,” says Marianne Anderson, the park’s administrator. “And what we need isn’t even a lot. If we had two or three dedicated staff, it would make a big difference.” Currently, regular maintenance staff must tend to basic park needs, and most are unable to perform advanced restoration work in natural areas.

Staten Island’s Greenbelt makes up almost a third of the natural area in the city, at nearly 3,000 acres. Yet for its 35 miles of trails—which face erosion issues and lack adequate trail markers—there is one full-time park supervisor, five seasonal city park workers, and two job participants, who are sometimes assigned to the larger park district, and not specifically the Greenbelt. The forest has numerous unmet needs, including a multimillion-dollar project to remove the vines that are strangling some of its landscapes.

“To reach long-term goals and promote an eco-healthy city, we need dedicated planning for restoration and trail system management,” says Tony Rho, the Greenbelt’s manager.

CAPITAL SLOWDOWN

The slow pace and sky-high costs of parks capital projects means that vital infrastructure dollars are stretched thin and elected officials think twice before allocating funding to parks projects.

From playground reconstructions and new comfort stations to drainage system upgrades and roof replacements, the Parks Department has nearly 600 capital projects underway citywide at any given time. But although the city's parks system faces extensive infrastructure challenges, the process by which the Parks Department undertakes capital projects has long been riddled with problems that delay even basic renovations and cause costs to escalate. As a result, many of these projects take years longer to complete than anticipated and come in far overbudget, making limited use of the city's urgently needed capital dollars, and frustrating park-goers and elected officials alike.

The process for designing and building parks capital projects has led to frequent problems over the years. The *New York Daily News* reported that the Parks Department had 43 ongoing projects delayed for five or more years as of 2017, including the reconstruction of the Olmstead Center in Flushing Meadows Corona Park, which began in April 2010 and is now just one-third of the way through the construction phase. Problems uncovered during the construction phase have pushed some timelines even further. For example, the community around Soundview Park in the Bronx welcomed news of a new playground in July 2007; it finally opened ten years later, in May of 2017.⁶⁸

Extremely lengthy capital projects have been common throughout the parks system for more than a decade. Nearly every parks volunteer or advocate we spoke with for this report had a story to share about an infrastructure project taking years longer than expected. Council Member Joe Borelli of Staten Island cited the case of Crescent Beach Park on the island's south shore, which is undergoing a landscape reconstruction with new paths and seating. The design phase officially began in June 2011, nearly seven years ago, and construction is just 2 percent completed, according to the Parks Department's Capital Project Tracker. If the project meets its current deadlines, the construction phase will be completed in the spring of 2019—more than ten years after the project was initially funded.⁶⁹

"There is profound dismay with the slow pace and high cost of Parks Department capital projects," says Council Member Mark Levine. "The needs are staggering, but you can barely move a rock for \$200,000." High costs are compounded by lengthy delays, which have historically

been frequent drivers of cost escalations. For instance, a single bathroom construction project on the western edge of Ferry Point Park in the Bronx was initially funded in 2006 and didn't open until March 2018, more than 11 years later. The project was initially expected to cost \$2 million but eventually totaled more than \$3.6 million.

It is common for parks capital projects to overshoot deadlines, particularly in the design phase. Until recently, most parks capital projects took 29 to 45 months from initial approval to ribbon cutting, according to Commissioner Mitchell Silver, a duration he characterized as far too long.⁷⁰ Moreover, these figures do not include the entire pre-design phase or project closeout, which can add months, if not years, to a project.⁷¹ In many cases, parks capital projects span council terms and even mayoral administrations before seeing a shovel in the ground; for example, the June 2017 announcement that the Bronx's Whalen Park would finally get a renovation came seven years after the community board first approved it.⁷²

As a result, problems with the capital construction process could jeopardize future funding. We spoke with multiple council members who questioned the value of allocating capital dollars to parks projects without any confidence that these projects would be completed within their two terms in office. In addition, high costs make projects difficult to fund, often requiring multiple officials to pool resources and find new money to make up for cost overruns. "It's very difficult to piece together the funding," says Council Member Andrew Cohen, "especially when the system still can't deliver for the stated price."

"We give parks the money, and nothing happens for years," says Kay Webster of the Sara D. Roosevelt Park Coalition. "If you're a council member, and want credit for having given money, you know that's not going to happen." Closing a park or playground for several years can also put serious strain on a community, which loses a valuable resource—not to mention trust in the city. "As a parent, there's a narrow window in which this particular playground is the center of your life," says architectural critic Alexandra Lange. "If it's down for two years, then it's over."

Under Commissioner Silver, the Parks Department has implemented timesaving measures in recent years, including standardizing designs and minimizing changes in the construction phase. These changes have cut down the

“There is profound dismay with the slow pace and high cost of Parks Department capital projects. The needs are staggering.”

design and construction phases by several months for newly initiated projects, according to the Parks Department, and the backlog of projects left over from the previous administration is beginning to shrink. In addition, many of the most severe bottlenecks are common to all city-funded capital construction projects and will require system-wide fixes. At the same time, problems remain and will need to be addressed if the city is going to make sustained progress on its mounting parks infrastructure needs.

Nearly every parks expert we spoke with says the capital design and construction process remains deeply flawed in general, and especially lengthy and frustrating for parks in particular. “The process that DPR has to navigate is wild,” says Nette Compton of the Trust for Public Land. “So Parks is stuck in a position where they’re trying to find workarounds and solutions. It’s like fixing pieces of a broken car. You can make small repairs, but the ultimate vehicle is problematic.”

As detailed in the Center for an Urban Future’s 2017 *Slow Build* report, which analyzed problems with the capital construction process for DDC-managed projects at libraries and cultural institutions—most of which apply here—all capital projects must run through a gauntlet of approvals from multiple agencies, with approval times measured in months.⁷³ In the design phase, differing priorities and unevenly applied eligibility rules can cause multiple returns to the drawing board, further elongating a laborious process. “The Public Design Commission wants to see innovation, great design, and interesting materials, while the borough wants something simple that they know, have training on, and understanding of,” Compton explains. “So of course, there’s tension there, and you have every individual project trapped in that tension.” In addition, parks projects require a time- and labor-intensive community engagement and visioning process, which has expanded in recent years. The effort is worthwhile, as the community plays a key role in how a park is used, and shaped; however, this requirement has the effect of further elongating the design phase.

Given these competing interests, this circuitous process can add additional months, or years, to a project’s timeline, and disagreement can restart the entire cycle. Landscape architects and designers who have worked on parks projects say that it’s normal to add a year of “buffer” onto any project.

In procurement, state law mandates that contracts are awarded to the lowest responsible bidder, rather than best-value contractors—an approach that can award contracts to undercapitalized and inexperienced contractors. These procurement rules also stymie long-term planning for maintenance and upkeep costs, which could be built into a best-value model. If a company’s estimate is higher than the city’s, it can be difficult and time-consuming to close the gap. Likewise, if field conditions are discovered, or new problems are found on a site during construction, it will require a change order and result in a lengthy negotiation and external approval by OMB. In addition, change orders and other delays can allow contractors to alter their prices, pushing costs in an already expensive market even higher. “Because of the overheated building environment in the private sector, bids on capital projects are coming back 30 or 40 percent over any union estimate,” says Adrian Benepe. “Everything costs way more than it should.”

Parks groups operating outside these city and state restrictions, predictably, see far better results. They more readily react to infrastructure demands, use higher-quality materials, and can rebuild in a timelier manner. “We’re able to say, ‘Let’s replace the flooring in this playground,’” says Jeffrey Sandgrund of Brooklyn Bridge Park. “I can make that decision in January, get a contract out in February, get it done in March, and have it open in three weeks. That’s not how the city works.”

TEN YEARS OF PARKS POLICY

Different mayors, different approaches to investing in parks.

After four years in office, Mayor de Blasio has made commendable strides in the way the city funds its parks. While continuing many of the successful initiatives of the Bloomberg administration, Mayor de Blasio and his parks commissioner have shifted away from a primary focus on building new parkland to instead invest more in aging parks infrastructure, with an enlarged central budget for repairs and more staffing for maintenance. The agency has also taken a more planning-oriented, comprehensive approach, incorporating other agencies and community voices into the process. As of this report's publication, 30 percent of parks are currently receiving some form of capital investment—the highest level in years.

Many of the administration's initiatives mirror the mayor's broader focus on equity and community development. One of the more high-profile announcements to date has been the Community Parks Initiative (CPI). Under the program, announced in October 2014, the agency is identifying 55 "priority" zones throughout the city, based on population density and a lack of previous capital work, among other criteria.

Between 2014 and 2017, 67 parks and playgrounds in those zones—including the South Bronx, the Rockaways, and upper Manhattan—have been selected for renovations.⁷⁶ With \$318 million invested from City Hall, these parks will undergo full redesigns, with new play equipment, comfort stations, and other facilities. By the start of 2018, most of the 2014/2015 CPI projects were either completed, or scheduled to be up and running by springtime, with some finished earlier than expected. In addition, DEP has committed \$50 million in green infrastructure projects for these parks.

"Things have improved tremendously, in relation to the infusion of dollars towards capital construction here in the district," says Cedric Loftin, of Community Board 1, in the South Bronx. "Every park that we had outstanding issues with is now in design phase."

Another impressive component of CPI is what's known as 'targeted improvements,' where quick fixes are made to longstanding issues in CPI zones, like cracked pavements and upended plantings. Between 2014 and 2018, 110 parks and playgrounds have been chosen for targeted improvements, with a majority already finished, and more on track to finish this year. In addition, the City Council has funded 50 non-permanent gardeners dedicated to CPI zones for each of the past three years.

Another ambitious program is the Anchor Parks Initiative, which funds improvements to a large park in each borough that has been historically underfunded. Announced in August of 2016, these parks—St. Mary's Park in the Bronx; Highbridge Park in Manhattan; Astoria Park in Queens; Betsy Head Park in Brooklyn; and Freshkills Park on Staten Island—will each receive \$30 million in capital dollars for projects proposed and vetted by the community and city.

As part of its goal to expand parks equity, the de Blasio administration announced voluntary commitments worth \$15 million from eight major conservancies in November of 2015. In addition, the Parks Without Borders initiative has sought design solutions to improve the accessibility of public green space, with \$50 million in improvements for eight parks citywide.

In interviews, DPR officials say that expediting the capital construction process is also a top priority, as parks projects have long been criticized for taking too long and costing too much. Since his appointment in 2014, Commissioner Mitchell Silver has implemented new measures, like standardizing design elements, bundling projects, hiring more staff, and prequalifying contractors for more projects. These efforts have reportedly shaved off three to four months from the construction and design phases. The agency has also made an effort to include funds for pre-site investigation in project budgets, which can identify technical problems earlier in the process, and hold emergency meetings for projects that have been mired for some time.

More recently, the de Blasio administration has shown a willingness to invest in new parkland—a need that continues to grow with the city's rising population. The East River Esplanade will see millions of dollars in renovation and expansion, work will begin soon on Williamsburg's Bushwick Inlet Park, and talks continue over more ambitious projects, like the QueensWay and BQGreen.

This administration has also continued work on one of Mayor Bloomberg's signature legacies: PlaNYC 2030. The Bloomberg administration's long-term plan, announced in 2007, called for every New Yorker to live within 10 minutes of a park, as density increased. Now, 81.5 percent of New Yorkers live within walking distance of a public green space, and the goal is still ongoing.⁷⁷

Under the leadership of then-commissioner Adrian Benepe, 800 acres of new parkland were added in Mayor

Working Together: A Lack of Interagency Coordination Hinders Repairs to Vital Infrastructure

Like every public space in New York, a park is a tale of jurisdiction—which agency is responsible for what can change just by crossing a curb. When project responsibilities overlap across agencies, and individual agencies’ processes fail to align, answering that question can prove difficult. As a result, older park amenities—especially bridges and drainage systems—are often left in limbo, and fixes are delayed.

While DEP may inspect certain sewer lines below parks, it is largely left up to the Parks Department to clear the catch basins that feed into them. Technically, DEP is responsible for all “green infrastructure” within city parks, although what that includes is often unclear.⁷⁴ DOT is responsible for specific pieces of infrastructure within parks, like bridges and lighting, but oversight is often piecemeal. For example, the streets that cut through Central Park and Prospect Park are DOT property, yet smaller park roads are not. Sometimes other agencies undertake the work of renovating parks property. For example, DDC managed the rehabilitation of the High Bridge that connects parks in Manhattan and the Bronx.

In Pelham Bay Park, Marianne Anderson says important infrastructure projects—like fixing the problematic drainage system underneath Shore Road—are stalled when agencies debate repair costs and timelines. In the Staten Island Greenbelt, officials say most modifications must be approved by the state, due to Moses-era regulations, which limit design options. In Flushing Meadows Corona Park, Janice Melnick says the U.S. Tennis Association, the DOT, and cultural organizations, like the Queens Museum, all have crisscrossing lines of responsibility that are often confusing, even to those involved. “If the lighting goes out, whose responsibility is it?” she asks. “When the water main breaks, [the museum] called us, but it ended up being DEP’s responsibility to fix it.”

This issue is particularly notable on the waterfront, where multiple agencies play a role. In total, ten city agencies regulate some portion of the city’s waterfront facilities, and the state’s Department of Environmental Conservation (DEC) must approve any project before moving forward. According to José Soegaard, director of programs and policy for the Waterfront Alliance, jurisdictional issues are among the main obstacles to routine waterfront maintenance. “There is no single source of funding for all of this, or a central coordinating agency with supra-legal jurisdiction,” he says. “What ends up happening is a merry-go-round of responsibility.” Take Newtown Creek, for example, says Soegaard. “When a bulkhead collapsed there in 2016, agencies debated for months over who’d pay to fix it.”⁷⁵

Nearly every park administrator or advocate we spoke with says this interagency confusion delays the city’s ability to meet its infrastructure demands. In Forest Park, Mk Moore says he has two pages of a back-and-forth regarding the dangerous catch basin along the park’s main drive. “DEP said it was DOT, because it was a street. And then DOT said it was DPR, even though DPR had said that their park ended at the road up the hill,” he says. “It always happens: everyone says everyone else.”

Bloomberg’s tenure.⁷⁸ The city spent dramatically more on parks in Mayor Bloomberg’s first term, as the Parks Department’s budget jumped 27 percent by the end of 2006. In total, \$4 billion of capital money was spent over the 12 years of Mayor Bloomberg’s tenure, leading to full-scale renovations of highly valuable amenities, such as the McCarren Park Pool. Many of the administration’s capital priorities were linked to developing areas, in an effort to attract new residents, businesses, and tourists. Out of the \$4 billion capital plan, \$1 billion was spent on “big-ticket” items, like Brooklyn Bridge Park, Governor’s Island, and the High Line.

Although the Bloomberg administration increased parks staffing toward the end of the mayor’s third term, maintenance largely lagged, dragged down by cuts following the 2008 financial crisis. For example, Riverside Park now has half of the maintenance workers it had in 2000.⁷⁹ Capital needs for city parks grew, while state of good repair spending stagnated.

The current ten-year capital strategy, totaling \$4.6 billion, is the largest to date for parks, yet still only makes up 4 percent of the city’s larger spending plan. Over the past two administrations, state of good repair spending has fallen behind growing costs. Without a sustained stream of funding for state of good repair needs, and an overhaul of how the city maintains its parks system, any serious investment made by City Hall will amount to little in 10 to 20 years, especially if an economic downturn were to occur in the interval. High-impact capital infusions, while necessary and laudable, will be even costlier in the future without continuous investment, no matter who’s in office.

“It really does change throughout when the administration changes. It’s very apparent, which is good and bad,” says one designer, who has worked on a number of parks projects. “If you agree with the mandate and goals of whoever’s administration is in there, then it could be good. But it also makes for a lack of continuity. That makes NYC Parks really unpredictable.”

LOOKING ELSEWHERE: SOLUTIONS FROM OTHER CITIES

Each urban parks system is constructed differently, in terms of geography, revenue streams, organizational structure, and jurisdictions. However, nearly every system struggles with the same core issues: balancing expansion and upkeep, raising sustainable streams of funding, prioritizing spending based on need, and operating in a complex fiscal and regulatory environment alongside numerous other agencies. Although New York City’s parks system is among the oldest in the country, with myriad examples of groundbreaking design, other cities have found success in recent years by developing innovative approaches to parks infrastructure. The following cities are employing best practices that New York should consider adapting and adopting, in order to improve parks infrastructure now and in the future.

Minneapolis, MN: Sustainable Stream of Funding, and a Long-Term Parks Plan

Overseeing 190 parks in a city where 97 percent of residents live within ten minutes of parkland, the Minneapolis Park and Recreation Board has been rated the nation’s best urban parks system by the Trust for Public Land.⁸⁰ In determining which success factors contribute to Minneapolis Parks’ strong reputation, many point to a unique funding arrangement between the Board and the city. Formed in 1883 to accommodate Minneapolis’ skyrocketing population, the state legislature created the Board to function independently from the City Council, with the ability to levy taxes and receive a percentage of state aid to the city.⁸¹ As a result, the Minneapolis Park and Recreation Board has both a sustained stream of funding and a reliable system of long-term capital planning.

The benefits are best showcased by the Board’s multiyear needs assessment project, entitled “Closing the Gap: Investing in Our Neighborhood Parks.”⁸² Under the direction of then Board Superintendent Jayne Miller, the 2014 project routinely and systematically analyzes the capital needs of the entire parks system, with each park receiving a profile that catalogs its assets, lifespans, replacement values, and investments since 2000. “We look at racially concentrated areas of poverty, population of that neighborhood, density of that neighborhood, and crime,” Miller explains. “Then the park characteristics: the assets within their life cycles, and the proportionality of capital investment over the last 15 years, against the total replacement value of those assets.”

The Board then assigns the parks a score in each category, and uses those scores to invest in parks on a rolling basis. “If the life cycle of an athletic field is 10 years, and if we have 40 of them, that means every year, we have to do four athletic fields,” reasons Miller. While this cycle will probably take about 20 years to come to fruition, it will enable the Board to systematically invest in everything from playgrounds to recreation centers, across all 190 parks. Furthermore, the system allows for the Board to prioritize investing in parks with the most imminent infrastructure needs, as well as those in racially concentrated areas of poverty.

“It removes the politics of, ‘We have x-million a year to put into capital reinvestment,’” says Tom Evers, executive director of the Minneapolis Parks Foundation. “It’s no longer the City Council or Park Board members ‘getting theirs’; it’s more about where the real need is, and trying to address some of the racial inequities that happen in the system.”

Minneapolis’ achievements and long-term ambitions are backed by significant investment from the city’s operating budget and in its workforce. Of all U.S. cities, Minneapolis boasts the highest parks spending per capita—roughly \$233 per resident per year, compared to New York’s \$178 in 2017, according to the Trust for Public Land. The city’s significant fiscal investment is matched by its impressive human capital investment, with the greatest proportion of parks staff to residents of any U.S. city—11 per 10,000 residents, compared to 6 in New York.

Philadelphia, PA: Interagency Coordination for Community Engagement, Innovative Funding, and Green Infrastructure

Philadelphia’s parks system is preparing for a major citywide infrastructure plan, which aims to break the cycle of dependence on discretionary funding. The proposal by Mayor Jim Kenney, entitled “Rebuild Community Infrastructure,” will allocate \$500 million to revitalize neighborhood parks, recreation centers, playgrounds, and libraries.⁸³ Not only does this multiyear investment in the city’s neighborhood parks pledge to bring them back to a state of good repair, but it also seeks to create well-paying jobs and opportunities for minority- and women-owned contractors to grow their businesses.

According to George Matysik, executive director at

Philadelphia Parks Alliance, the city has been conducting a massive “public space renaissance” over the past 20 years, but much of it has been restricted to a few zip codes in and around the inner city, leaving the outlying neighborhoods without adequate funding, recognition, and resources. Matysik says that Rebuild will “look more at how we can use public spaces in the fight against poverty, which is probably one of the biggest issues that we need to take on as a city. That starts with investing in the individuals who need it most.” As such, the plan includes funding for workforce development and inclusion programs and a goal of ensuring that women and minorities comprise at least 45 percent of the workforce behind Rebuild’s public space restoration projects.

The funding for such an ambitious parks restoration and economic opportunity initiative is probably familiar to New Yorkers: a 1.5 cent levy on sweetened beverages, better known as a soda tax, which will also help fund universal prekindergarten and community schools. New York State considered a similar tax in 2010, but no legislation has been introduced.

In addition to a dedicated revenue source, Philadelphia also benefits from strong interagency cooperation on infrastructure issues between the city’s Water Department and Parks Department. In 2007, the two agencies created the Green Stormwater Infrastructure initiative, an innovative collaboration that enables the Water Department to assist with 46 different green infrastructure projects within parks.⁸⁴ To successfully implement this initiative, officials from the two departments meet once a month to coordinate capital planning timelines and align interests, work, and funds.

“Our Parks Department is extremely underfunded, [so] our green infrastructure mandate has funds coming from the Water Department,” says Jessica Noon, director of strategic partnerships at Philadelphia’s Water Department. “Even though we’re just installing green infrastructure in rain gardens, in many places, we’re really trying to work with the Parks Department to align our project timeline with their interest in renovation.” Since 2011, the initiative has managed over 200 acres of impervious surfaces in parks, with 25 completed projects, 41 in design, and 6 under construction.

Dallas, TX: A Citywide Parks Foundation for Efficient Fundraising

Dallas’ Parks Department has found similar success in devising innovative funding and maintenance solutions. As one of the largest municipal parks systems in the country—boasting more than six times the acreage per capita of New York—Dallas has developed a sustainable stream of funding to meet both its short-term and long-term infrastructure needs. “They have a holistic kind of approach,” says Charles McCabe, director of the Center for

City Park Excellence at the Trust for Public Land. “They’re trying to collaborate among the public and private sides to fund not only the development of the parks, but also the operation and programming of those parks.”

Initiated by the city’s 2002 Renaissance Plan, which focused on revitalizing parks after a period of disinvestment, and pushed forward through the development of the city’s first Recreation Master Plan in 2016, Dallas has made parks investment a top priority. To back up this commitment, the city has allocated \$1.5 billion to its parks, funded in part through its parks foundation.⁸⁵ Designed to function as an intermediary between park volunteers and the Parks Department, the Dallas Parks Foundation was established in 2002 to focus on the city’s 430 neighborhood parks, while benefactors and corporate sponsors support larger parks. The Foundation does this by coordinating with park volunteer groups and acting as a fiscal sponsor on their behalf, while working directly with the Parks Department to prioritize infrastructure and maintenance needs.

“We basically become the bank for these neighborhood groups,” explains Sam Stiles, director of the Dallas Parks Foundation. “So instead of them having to go out and create their own 501(c)3, and wade through all the legal paperwork, they basically become a sub-fund of the Parks Foundation, which allows donors to make donations, and still take that tax benefit at the end of the year.”

An emphasis on efficient communication and realistic goals is a core tenet of the Foundation. “When people come and say, ‘I want to buy a new swing set for the kids in this park,’ we can do that,” says Stiles. “But as far as building anything, we take the ideas that are brought up to the Parks Department, and then try to build a case for them. We become that conversation between the two before we finally bring them all together.” Stiles is also committed to being a responsible steward of neighborhood demands, noting that the Foundation does not fundraise for any proposals that do not include a long-term maintenance plan or funding strategy.

Denver, CO: A Data-Driven, Modern Assets Management System

Recognizing the need for a more transparent, data-driven capital projects model, Denver’s Department of Parks and Recreation recently created the first parks’ assets management system in the nation. After inventorying all of its green and open space, as well as digitizing its trail system, the department underwent a systemwide field conditions assessment, in which surveyors and analysts visited all the park parcels citywide, and catalogued every single piece of parks infrastructure, from benches to basketball hoops. The data entry included whether or not the item met current design standards; a condition rating, on a scale of 1 to 5; the priority of repair, from a safety standpoint; and an age category of 1 to 4, detailing approximately which quarter of its lifespan the asset was in.

The entire process cost \$60,000, with one full-time GIS analyst on staff. Now, plans are underway for a second needs assessment, which will apply lessons learned in the first assessment, and also include a tablet application for immediate data entry. With the app included, the second assessment will cost up to \$130,000, for assessing 260 individual parcels of land. In cataloguing every single piece of park infrastructure, Denver's DPR can both estimate their asset value (currently at \$1.5 billion) and precisely pinpoint specific needs.

"That's what we've focused on the last five years: understanding our system from a business level, and quantifying the need in an irrefutable way, with really detailed data metrics," says Gordon Robinson, director of park planning, design, and construction

at Denver Department of Parks and Recreation. "We know where assets are, and their condition. We can shoot you a map that says, 'The very poor condition assets are these dots, and they add up to this much in replacement value.'"

By having this asset management system in place, Robinson says it has been easier to not only show what the parks' direct needs are to the city, but also to convince local officials to fund them. It has even allowed the department to better map their parcels for permitting purposes, and analyze space capacity for events—a potential key source of alternative revenue streams. Says Joseph Lovell, the GIS administrator who initiated the process: "Just having that data available holds so many possibilities beyond just a needs assessment."



Trinity River Park in Dallas, envisioned as a natural area along a major floodplain, would be the largest urban park in the nation when completed (Michael Van Valkenburgh Associates).

RECOMMENDATIONS

21 IDEAS FOR REVITALIZING NEW YORK CITY'S PARKS INFRASTRUCTURE

In a city as old as New York, maintaining and upgrading essential infrastructure is a near-constant struggle. But while many New Yorkers are familiar with the city's aging streets, bridges, subways, libraries, and schools, there is little awareness of the age and infrastructure challenges facing the city's public parks. As parks usage surges and state of good repair needs continue to grow, New York City will need to make substantial and sustained new investments in maintenance and staff, while allocating new unrestricted capital funding for renovations and upgrades.

Improving How NYC Pays for Parks

Make investment in New York City's aging parks infrastructure a priority for the de Blasio administration's second term. Parks are vital to the life, health, and economic future of New York City. However, insufficient maintenance over decades, coupled with the vulnerabilities of an aging system, has resulted in major unaddressed infrastructure problems. Despite some major new investments in parks, the Parks Department lacks the capacity to systematically identify infrastructure needs and address them in a timely and cost-effective manner. In order to sustain the city's public parks for the next generation and beyond, city leaders will have to develop and implement an infrastructure restoration plan and make parks infrastructure a priority citywide.

Fund a larger expense budget for the Parks Department. Despite important increases to its expense budget in recent years, the Parks Department continues to suffer from limited capability to maintain and repair vital infrastructure, such as retaining wall restoration, horticultural upkeep, and drainage system maintenance. Although the current administration has increased the Parks Department's maintenance and operations budget from \$223 million in FY 2014 to \$306 million in FY 2018, further increases should be planned over the next five years to enable the agency to begin closing the gap between its mounting infrastructure maintenance needs and its current capabilities. In particular, this funding should be used to strategically increase the number of full-time maintenance and operations staff with specific technical skills, such as gardeners and foresters, masons, plumbers, electricians, mechanics, and other skilled workers. This will allow the Parks Department to better maintain

existing infrastructure and perform essential preventative maintenance, rather than relying on discretionary funding for capital work once systems break down, saving the city time and money and improving the condition of parks in the process.

Establish a sustained stream of capital funding for routine state of good repair investments. In order to prioritize infrastructure projects based on need, the Parks Department needs capital funding that is not contingent on the preferences of individual elected officials. A better alternative would be a sustained stream of capital funding that allows for increased state of good repair investment and long-term infrastructure planning. To the de Blasio administration's credit, the Parks Department's capital budget has been increased significantly in recent years, with a much-needed focus on renovating aging parks, but more needs to be done to ensure that essential upgrades can be scheduled and executed at the optimal time. The city should establish a state of good repair capital budget of \$100 million per year, to be allocated at the discretion of the commissioner, in order to meet these mounting needs. These funds can be used for projects that are unlikely to get funded otherwise and provide last-in dollars—the final sum required to fully fund a project—on projects that are primarily funded with council allocations, avoiding unnecessary delays. The current discretionary model—both for City Council members and borough presidents—should be encouraged for supplemental projects, not essential repairs. At the same time, a lengthy approval process has undermined the intent behind the system's "requirements contracts," which were initially created to efficiently dispatch work crews to address infrastructure problems, without taking on more responsibilities in-house. The use of these contracts should be expanded, and the approval process simplified, so that state of good repair work can be undertaken more efficiently.

Identify innovative revenue streams and new ways of capturing value from parks infrastructure. Unlike other cities' parks systems, state law largely limits potential sources of New York City's parks funding. City residents are unable to vote on a referendum for parks funding—which has been immensely successful in other cities—nor is the Parks Department allowed to levy a tax specifically for parks, as is the case in Chicago and Minneapolis. In order to

make progress on addressing the city’s parks infrastructure needs, New York will have to develop new, innovative revenue streams for its parks.

In several other states, a small surcharge on sporting and concert event tickets is used to generate maintenance funding for parks and recreation. New York State should adopt a similar surcharge to fund parks maintenance, as well as a surcharge on greens fees at golf courses within the five boroughs. The city should also consider adding a small surcharge onto dockage fees at its publicly owned marinas, which could be allocated directly to the maintenance of waterfront park facilities. It’s also worth exploring a program like Pennies for Progress in South Carolina, where a one-cent surcharge on sales taxes has raised millions for capital projects. In addition, the City Council should pursue more systematic inclusion of parks funding as part of rezoning agreements for new developments, which are often required to mitigate issues around parking, transit, and public safety, but rarely required to fund open space provision, improvements, or ongoing maintenance.

Increase the revenue generated from parks concessions. In FY 2018, the Parks Department expects to collect \$70.5 million from the concessions, leases, and rentals on parkland. However, this revenue has remained largely flat over the years and is down 22 percent from the FY 2007 total of \$75.8 million, after adjusting for inflation. New York City has enormous potential to increase parks’ earned revenues significantly, while focusing on opportunities that enhance the experience for parkgoers and generate opportunities for local businesses.

One factor disincentivizing sustainable revenue growth is the fact that these funds ultimately return to the city’s General Fund, and are not applied to the parks system’s needs. Instead, fees from new concessions should be at least partially dedicated to fund park operations, as in the case with Madison Square Park, where concessions revenue helps pay for a well-equipped operations team as part of a contract with the Madison Square Park Conservancy.

New concessions can add to the surrounding communities’ park experience, while supporting local entrepreneurs. These approaches might include inviting small, local businesses—like food trucks, flea markets, or stands—into parks to vend goods and services, or creating occasional or seasonal festivals. Successful examples that could be strategically expanded include the popular local food vendors at the renovated Jacob Riis Park in the Rockaways; the homegrown food stands in Flushing Meadows Corona Park; or the upcoming hyper-local market planned for St. Mary’s Park in the South Bronx. In addition, major park developments—such as the East Side Coastal Resiliency Project along the Manhattan shoreline—should integrate concessions into the fabric of the parks during the design phase.

The Parks Department, in concert with the mayor’s office, should take steps to increase concession revenues by 20 percent over the next four years—an achievable goal, given that concessions revenues have been higher than that in the recent past. The Parks Department can set up a task force—drawing on expertise within NYCEDC, the Department of Small Business Services, and nonprofit small business intermediaries—to generate ideas on how to accomplish this, while maintaining a focus on improving the experience for parkgoers and complying with the department’s appropriate use requirements for concessions.

Create a citywide parks conservancy to help fundraise for neighborhood park projects. Many parks volunteer groups and community organizations told our researchers that they face institutional barriers to receiving grants to conduct parks projects in their neighborhoods. The work performed by organizations like Partnership for Parks and City Parks Foundation to nurture “friends of” groups and recruit volunteers has been beneficial for boosting maintenance in the absence of sufficient funding. However, the city can do more to help community groups interested in making improvements to local parks with fundraising activities. This could include grant writing and development coaching, free accounting and bookkeeping services, and helping nonprofit community organizations act as fiscal sponsors for smaller groups.

In Dallas, for example, a citywide parks conservancy acts as an intermediary to help raise funds for park projects in historically underserved areas and accepts donations for groups that are not 501(c)3 nonprofits. Although New York’s City Parks Foundation offers fiscal sponsorship services, the city can do more to unite the existing patchwork of conservancies and other nonprofits and connect local organizations to technical assistance and funding opportunities. The Parks Department should explore a model similar to the Borough Arts Councils, which can help civic groups acquire low-cost fiscal sponsorship and disburse funding to individuals and informal associations dedicated to a specific park.

Improving How NYC Maintains Parks

Increase maintenance and operations staffing levels to support parks, playgrounds, gardens, horticulture, and other parks assets. New York City’s parks lack sufficient levels of maintenance funding and staffing to ensure that the system can be sustained at a time of ever-increasing demand. Deferred parks maintenance needs have increased 143 percent over the past decade, from \$14 million to nearly \$34 million. Meanwhile, the Parks Department’s gardeners, foresters, masons, electricians, plumbers, and engineers are stretched thin—especially in small and

medium-sized parks in the boroughs outside Manhattan. The result is that maintenance needs continue to climb with insufficient levels of skilled workers to handle the backlog. Although conservancies and outside park groups help to narrow the funding gaps for certain parks, the current level of maintenance and operations staffing afforded to parks is too low to ensure adequate capacity across the system. Instead, infrastructure is allowed to degrade until it collapses, necessitating expensive and time-consuming capital construction projects. The city should commit to increasing the Parks Department's full-time headcount, which is currently 35 percent below the level of the early 1970s, and allow for the strategic hiring of additional skilled workers in every borough.

Revamp the Parks Opportunity Program as an initiative to develop career pathways in green infrastructure.

While nominally beneficial for cost-saving purposes, the Parks Department's heavy reliance on temporary workers via the Parks Opportunity Program presents problems for parks infrastructure. Turnover and transience built into the current model means that supervisors are stretched thin, skills-building achievements are limited, and few workers are able to gain meaningful competencies for future employment. A high turnover rate and a lack of full-time opportunities inhibits workers from learning more advanced skills, and deprives the Parks Department of a potential pipeline of more specialized green infrastructure professionals.

The city and the Parks Department should work with existing partners and other successful skills-building organizations to re-launch POP as a job training program that offers concrete paths to careers in growing fields of green infrastructure, including public horticulture, forestry, invasive species mitigation, and stormwater management. In addition, an apprentice program should be developed in partnership with a union or major private sector employer to train workers in technical skills such as outdoor plumbing, electrical work, masonry, and even blacksmithing.

A robust full-time staff of specialized workers who can effectively respond to infrastructure demands would save the city millions of dollars in the long-term, as more is spent on maintenance and less on larger capital restorations. Ultimately, the city should rethink how it trains park workers, ensuring that job seekers have the skills necessary to support the modern parks system that New York City needs.

Mandate detailed maintenance plans for capital projects. Through regular assessment and standardization, various categories of capital project maintenance can be streamlined to ensure timely inspection and routine care. With the Community Parks Initiative projects, the Parks Department has begun implementing this model to better

manage its limited resources, but too many capital projects still end up funded without commensurate planning for long-term maintenance and repair. At the same time, certain infrastructure categories have not yet received maintenance plans, such as drainage and retaining walls. The city should mandate and expedite this process and require detailed maintenance plans for all parks assets, which will ensure that routine repairs are accomplished at effective intervals, while minimizing long-term capital needs.

Set a maintenance schedule for park streets, sidewalks, and stairs.

While some streets in parks are overseen by DOT—namely, those that carry motor vehicle traffic—most sidewalks, pathways, and stairs are not. Unlike DOT, the Parks Department does not have mandated inspection schedules for park roads and other pathways based on average daily usage, nor a way to perform upkeep aside from a costly capital restoration. The Parks Department needs a fully funded maintenance schedule, developed in partnership with DOT, to assess the condition of pedestrian pathways and DPR-administered park roads, to help the Parks Department ensure that its paths are safe and accessible to all.

Improve parks infrastructure through testing of new designs and materials that meet the needs of modern users, and reduce long-term energy and maintenance costs.

Parks worldwide are finding innovative ways to build better and smarter structures, enhancing the experience for visitors and finding long-term cost savings. New York's Parks Department should test new designs such as composting comfort stations in areas without sewer service; solar-powered charging stations, concessions, and amenities; and modular structures made from energy-capturing fabrics and recycled materials. The Parks Department has taken steps to streamline the design of comfort stations by reusing prior designs—an approach that is saving time and cutting design costs—and this approach should be expanded to other infrastructure types. Meanwhile, the city's parks can do more to pilot new systems and structures that are optimized for long-term maintenance efficiency and to reduce waste, while capturing better data on park usage patterns. Testing these technologies now can yield real benefits in the future: for example, the upfront cost of composting comfort stations can be offset by a longer lifespan, and reductions in energy use and waste.

Improving How NYC Plans for Parks

Create a City Parks Board charged with long-term planning across administrations. As one experienced park designer notes, work with the Parks Department can be

“unpredictable,” as mayoral initiatives and priorities change with each passing administration. Since infrastructure priorities are so closely tied to the wishes of elected officials, this model inhibits the sort of long-term planning that the system requires to address its infrastructure needs.

To help steer the city’s parks system on a long-term course, New York should create a City Parks Board, which would be charged with outlining the five-year, ten-year, and long-term needs of the city’s parks system, along with regular reassessments, and developing specific strategies to fund and maintain them. Such a system can help the city look beyond its short-term preferences and instead develop a sustainable trajectory for the next century of New York City’s public parks.

Fully fund a regular system-wide needs assessment, and other data-gathering initiatives. Adequately addressing the city’s parks needs starts with knowing where the problems are. To do so, the city needs to fully fund and expedite the Parks Department’s first-ever system-wide needs assessment. At the current rate, this assessment could take 20 years to complete, at which point major infrastructure categories will have already exceeded their lifespans. Completing this assessment quickly and efficiently should be a top priority. Only then can the Parks Department comprehensively evaluate the parks system, prioritize resources based on metrics, and develop an asset management system that brings New York’s parks up to speed with those of leading cities.

To better understand and mitigate widespread drainage problems, the Parks Department should allocate maintenance funding to comprehensively assess flooding issues across the system and develop sustainable, water-sensitive green infrastructure solutions as a better alternative to replacing aging drainage structures.

Expanded data collection is needed for effective horticultural and natural areas management. The city should fund a comprehensive map of the gardens and plantings in all five boroughs, to ensure that maintenance schedules are responsive to the needs of different environments and staffing levels are sufficient to ensure proper care. In addition, PIP surveys should expand to include vital natural areas beyond the reach of existing trails, in order to supplement the work of the Natural Areas Conservancy and ensure that natural areas are regularly inspected in the future.

Lastly, the Parks Department should strengthen its ability to pinpoint stressed infrastructure by factoring in usage data. DPR’s Parks Usership Program is beginning to collect this crucial data, but this effort should be accelerated to cover most city parks by 2020.

Expand the Community Parks Initiative, Parks Without Borders, and Anchor Parks. The de Blasio

administration’s signature parks initiatives have allocated desperately needed resources to historically underserved parks across the city. By focusing on population density, a historic lack of capital funding, and community involvement, these programs are increasing equity across the system and making substantial improvements in crumbling infrastructure. But given that fewer than one-third of parks found eligible for the Community Parks Initiative have received funding through that program, along with just 8 of 691 parks that applied for Parks Without Borders, these initiatives should be expanded to meet the overwhelming demand.

Supplement AIMS with a database of parks assets that includes key categories left out of the current system.

The city’s asset information management system has serious limitations when it comes to adequately capturing vital park needs. The current system is designed to catalog only assets with a replacement cost greater than \$10 million, and excludes “landscaping or outdoor elements” and “aesthetic considerations,” which are key elements of any park. To enable better long-term planning and offer a clearer portrait of the state of parks infrastructure in New York City, the Parks Department should supplement AIMS with its own database of parks assets, which could include all assets with a replacement cost above \$1 million, as well as the major landscaping elements that AIMS leaves out.

Encourage more skill sharing and coordination among agencies.

When it comes to parks infrastructure projects that span the roles of different agencies, a lack of clear responsibility can stymie effective coordination. All too often, critical maintenance tasks—like unclogging catch basins or inspecting bridges—fall by the wayside, as each agency assumes the other is in charge. In addition to quarterly meetings on capital projects—a recent and welcome development—DPR, DEP, and DOT should develop a framework for handling routine maintenance and inspection duties in the most cost-effective way possible. For example, DEP has backed away from sewer line work in parks, including catch basin clearance, leaving the job up to the Parks Department, yet DEP has expertise and resources that DPR lacks.

In addition, projects such as bioswales for street trees and greenways in parks show the promise of integrating DOT’s planning capabilities with DPR’s expertise in maintaining green infrastructure, but these multifunctional infrastructure projects should be developed on a larger scale. Ultimately, better coordination among agencies can eliminate redundancies, improve the way maintenance is scheduled and delivered, and develop more effective ideas for renovations and upgrades.

Complete a comprehensive parks bridge survey. Under the current system, a park bridge must either be specifically

funded for inspection or part of DOT's inspection program before regular inspections can occur. As a result, there are an unknown number of park bridges that have gone uninspected for years. In conjunction with DOT engineers and DPR inspectors, a comprehensive bridge survey should be funded to locate and assess the condition of every park bridge, and these bridges should be listed for regular inspection by DOT in the future.

Invest in an interagency Green Lab. On issues of vital importance to parks—such as stormwater management, pathway maintenance, sanitation, and resiliency planning—the roles of various city agencies are inextricably linked. New York City should take a cue from the Philadelphia model, in which green infrastructure planning is coordinated across multiple agencies, and launch an interagency Green Lab to design, plan, and implement new green infrastructure projects.

Leveraging expertise and input from DPR, DEP, DOT, and even the Department of Sanitation, among other agencies, the Green Lab could pilot programs in parks, natural areas, and other open spaces, including resiliency planning for coastal areas, renewable power generation for park facilities, and smarter approaches to waste management—like the new trash management system in Crotona Park, which increased cleanliness there by 65 percent. By tapping resources from different agencies and plugging in to existing workforce development programs, the Green Lab could serve as a key training ground for green infrastructure careers. Ultimately, successful pilot programs could be absorbed into larger maintenance budgets across agencies, with innovations spread citywide.

Improving How NYC Builds Parks

Improve the capital construction process for parks. The issue has increasingly become a talking point in City Hall, but the problem remains clear: the city's capital construction process is broken. DPR projects, in general, stand out as among the most deeply affected, as park projects are often tied up for years; a number of Bloomberg-era projects are still being completed as of this report's publication. The agency desperately needs a capital process that can complete projects efficiently and cost-effectively, while incorporating community input when necessary. To do so, the Parks Department needs to continue making significant improvements to parts of the process that are under its control. At the same time, the city should undertake a deeper review of its capital construction issues—a process that the City Council had hoped to begin in 2017, but appears to be stuck.

DPR has implemented some reforms to the design and construction phases, with promising results. In addition, new “red zone” meetings for delayed capital projects are helping to clear the backlog, either by tackling the problem or eliminating the project entirely. However, major issues remain in both the

design and procurement phases, where projects often find themselves stuck in a lengthy back-and-forth between various stakeholders, including DPR, elected officials, community organizations, and oversight agencies such as OMB.

One solution is to streamline the way repairs and maintenance are handled in order to avoid capital construction delays. A larger expense budget would give the Parks Department more flexibility to manage essential repair and maintenance projects outside the capital process. Likewise, streamlined requirements contracts can place skilled contractors on call, allowing state of good repair work to be completed much more efficiently. In addition, major capital projects should be managed using the integrated project delivery model, which ensures that all stakeholders and decision-makers are part of the same team and working together to meet a clear set of deadlines and objectives. To do so, the Parks Department should expand the use of in-house cost estimators to establish clear guidelines based on industry standards and onsite construction managers who are deputized to resolve issues as they arise.

Finally, more accountability needs to be built into the system. The Parks Department's Capital Projects Tracker is a good start, but it lacks crucial detail. The department should be required to expand the tracker to include the dates projects were fully funded, projected and actual cost overruns, individual sources of funding, and the length of time it took to complete each project from funding to closeout, as well as reasons for specific delays.

Expedite and implement the work of the City Council's Capital Projects Management Reform Task Force. The City Council's Capital Projects Management Reform Task Force was expected to propose long-awaited rule changes by the end of 2017, but the task force's current status is unclear and no public statements have been made regarding the timeline for further action. The Council should make this project a top priority for 2018, with the goal of proposing and implementing rule changes by the end of the year.

Prequalify more contractors for higher-value parks projects. As of this report's publication, the Parks Department has prequalified contractors for “general work” projects, which are capped at \$3 million. Unfortunately, given the high costs of most parks capital projects, this cap leaves out a significant portion of parks projects, which would also benefit greatly from more efficient contracting. The agency should expand prequalification to include higher-value projects. In addition, the Parks Department should work to prequalify specialized contractors for more types of projects—such as geotechnical engineers who perform pre-site inspections, drainage system specialists, and masonry contractors—which can speed up procurement from months to weeks.

ENDNOTES

1. These findings are based on the Center for an Urban Future's analysis of the only available data, which includes historical information collected on the Parks Department's website and records of capital work dating back to 1996. Taken together, these sources provide information on the majority of parks in the system, although gaps remain due to the lack of accessible records prior to 1996. The capital work records were provided under a Freedom of Information Law request and covered the period from January 1996 to September 2017.
2. DOT, "2016 Bridges and Tunnels Annual Condition Report," http://www.nyc.gov/html/dot/downloads/pdf/dot_bridgereport16_part3.pdf.
3. NYC Parks, "History of Recreation in Parks," <https://www.nycgovparks.org/about/history/recreation>.
4. NYC Parks, "History of Parks' Swimming Pools," <https://www.nycgovparks.org/about/history/pools>.
5. OMB, "AIMS Agency Reconciliation, FY 2016," <http://www1.nyc.gov/assets/omb/downloads/pdf/as06-16.pdf>.
6. Mark Andrew and Carol Baker, "Minneapolis Park Funding: Take the 20-Year City Hall Plan," *Minneapolis Star-Tribune*, <http://www.startribune.com/minneapolis-park-funding-take-the-20-year-city-hall-plan/376798801>.
7. Center for an Urban Future analysis of New York City 1975–1976 Modified Expense Budget, accessed from the Municipal Library.
8. NYC Parks, "Report on Progress: 2014–2016," https://www.nycgovparks.org/downloads/nyc-parks-report-on-progress_2014-2016.pdf.
9. San Francisco Recreation and Parks Department, "Public Budget Presentation (FY 2017–2018)" <http://sfrecpark.org/wp-content/uploads/Public-Budget-Presentation.pdf>.
10. Center for an Urban Future analysis of New York City 1975–1976 Modified Expense Budget.
11. The Trust for Public Land, "City Parks Fact Report 2017," https://www.tpl.org/sites/default/files/files_upload/CityParkFacts_2017.4_7_17.FIN_LO_.pdf.
12. NYC Parks, "Parks Without Borders," <https://www.nycgovparks.org/planning-and-building/planning/parks-without-borders>. Although only eight parks were selected to receive full funding as part of the Parks Without Borders initiative, the Parks Department is working to apply these design concepts to parks citywide.
13. Stephon Johnson, "Comfort Station Providing Little Comfort for Harlem Residents," *Amsterdam News*, August 3, 2017, <http://amsterdamnews.com/news/2017/aug/03/comfort-station-providing-little-comfort-harlem-re>.
14. "City Projects Should Not Take Forever and a Day," *Crain's New York Business*, June 27, 2017, <http://www.craigslist.com/article/20170627/POLITICS/170629910/editorial-city-projects-should-not-take-forever-and-a-day>.
15. Denis Slattery, Joe Murphy, and Reuven Blau, "NYC Parks Dept. Has 43 Projects Like Playground Bathroom Delayed for Five Years or More; Stadiums, Bridges Were Built Faster," *New York Daily News*, <http://www.nydailynews.com/new-york/nyc-parks-dept-43-projects-stalled-5-years-article-1.3093135>.
16. Amanda Mikelberg, "City Council Members Blister Parks Department for 'Unacceptable' Project Delays," *Metro*, January 24, 2017, <http://www.metro.us/new-york/city-grills-parks-department-for-unacceptable-project-delays/zsJqax--v7cnFs1hMSIq>.
17. "Capital Project Tracker: Citywide Reconstruction & Stabilization of Retaining Walls & Seawalls," NYC Parks, <https://www.nycgovparks.org/planning-and-building/capital-project-tracker/project/6212>.
18. OMB, "Executive Summary, FY 17," <http://www1.nyc.gov/assets/omb/downloads/pdf/as12-16.pdf>.
19. Adam Forman, *Caution Ahead: Overdue Investments in New York's Aging Infrastructure*, Center for an Urban Future, March 2014, <https://nycfuture.org/pdf/Caution-Ahead.pdf>.
20. OMB, "Executive Summary, FY 17."
21. Richard Khavkine, "Stairs' Repair Could Cost \$500K," September 28, 2015, *New York Press*, <http://www.nypress.com/local-news/20150928/stairs8217-repair-could-cost-500k>.
22. OMB, "FY 2018 Executive Ten-Year Capital Strategy," <http://www1.nyc.gov/assets/omb/downloads/pdf/typ4-17.pdf>.
23. OMB, Mayor's Management Report, FY 2017, <http://www1.nyc.gov/assets/operations/downloads/pdf/mmr2017/dpr.pdf>.
24. OMB, "FY 2018 Executive Budget Summary," <http://www1.nyc.gov/assets/omb/downloads/pdf/mmm4-17.pdf>.

25. OMB, "Agency Performance Indicators: DPR," <https://data.cityofnewyork.us/report/mmr/DPR/how-we-performed#3a>.
26. Angela Matua, "Astoria Gets Millions for Upgraded Parks, Stroke Center and More in City Budget," *Queens Gazette*, June 12, 2017, <http://qns.com/story/2017/06/12/astoria-gets-millions-upgraded-parks-stroke-center-city-budget>.
27. David Gonzalez, "For Decades, Fighting to Rescue a Bronx Park From Disrepair," *New York Times*, August 4, 2013, <http://www.nytimes.com/2013/08/05/nyregion/for-decades-fighting-to-rescue-a-bronx-park-from-disrepair.html>.
28. Timothy Williams, "New Wall is Finished; Legal Debris Remains," *New York Times*, October 6, 2007, <http://www.nytimes.com/2007/10/06/nyregion/06wall.html>.
29. NYC Parks, "Design and Planning for Flood Resiliency," <http://www.crainsnewyork.com/article/20160522/OPINION/160529985>.
30. Ronald Lewis, "As New York Reclaims its Waterfront, Problem Loom Under the Surface," *Crain's New York Business*, May 23, 2016, <http://www.crainsnewyork.com/article/20160522/OPINION/160529985>.
31. Mark Lord, "World's Fair Gets Repair Funds," *Queens Chronicle*, August 8, 2013, http://www.qchron.com/editions/north/world-s-fair-marina-gets-repair-funds/article_039bed1d-60fe-56e8-9d99-7d6474e0ad6d.html.
32. Shaye Weaver, "Stretch of East River Esplanade Crumbles into East River After Heavy Rains," *DNAinfo*, May 8, 2017, <https://www.dnainfo.com/new-york/20170508/yorkville/east-river-esplanade-east-89th-collapse-gracie-mansion>.
33. Amy Zimmer, "New York's Construction Boom Isn't About Manhattan Skyscrapers," *DNAinfo*, January 31, 2017, <https://www.dnainfo.com/new-york/20170131/bushwick/new-construction-queens-brooklyn-manhattan>.
34. George Valiotis, "City's Ferry Expansion Heralds Waterfront Boom," *Crain's New York Business*, June 3, 2016, <http://www.crainsnewyork.com/article/20160603/OPINION/160539978/new-york-citys-ferry-expansion-heralds-waterfront-boom>.
35. "NYC Parks Completes Reconstruction of Historic 79th Street Boat Basin A-Dock," NYC Parks, August 30, 2016, <https://www.nycgovparks.org/parks/riverside-park/pressrelease/21408>.
36. OMB, "Executive Summary, FY 17."
37. OMB "FY 2018 Executive Ten-Year Capital Strategy."
38. NYC Department of Citywide Administrative Services, "Workforce Profile Report FY 2016," http://www.nyc.gov/html/dcas/downloads/pdf/misc/workforce_profile_report_fy_2016.pdf
39. Jeanmarie Evelly, "Astoria Park Bathroom Waste Was Dumped Into East River for Decades: City," *DNAinfo* February 4, 2016, <https://www.dnainfo.com/new-york/20160204/astoria/astoria-park-bathroom-waste-was-dumped-into-east-river-for-decades-city>.
40. Jeanmarie Evelly, "Reopening of Astoria Playground Bathrooms Delayed Until 2020, City Says," *DNAinfo*, <https://www.dnainfo.com/new-york/20171017/astoria/charybdis-playground-bathrooms-will-reopen-in-2020-astoria-park>.
41. "In Case You Had Plans to Use the Men's Room at Tompkins Square Park," *EV Grieve*, January 7, 2017, <http://evgrieve.com/2017/01/in-case-you-had-plans-to-use-mens-room.html>.
42. Office of the NYC Comptroller, "ClaimStat Alert: Protecting Kids on NYC Playgrounds," February 2015, https://comptroller.nyc.gov/wp-content/uploads/documents/ClaimStat_Playground_February_2015.pdf.
43. Max Jaeger, "Flay-grounds: Bay Ridge, Dyker Lead Borough in Playground Injury Lawsuits," *Brooklyn Paper*, March 13, 2015, https://www.brooklynpaper.com/stories/38/11/br-dangerous-bay-ridge-playgrounds-2015-03-13-bk_38_11.html.
44. Katherine Martinelli, "When Kids Create Their Own Playground," *The Atlantic*, April 1, 2016, <https://www.theatlantic.com/education/archive/2016/04/when-kids-create-their-own-playground/476229>.
45. American Society of Landscape Architects, "Health Benefits of Nature," <https://www.asla.org/healthbenefitsofnature.aspx>.
46. Office of the NYC Comptroller, "ClaimStat Report 2014–2015," <http://comptroller.nyc.gov/wp-content/uploads/documents/ClaimStatReport.pdf>.
47. OMB, "Mayor's Management Report, FY 2017."
48. OMB, "FY 2018 Executive Budget Summary."
49. "Minneapolis Parks Board Budget, FY 2017," https://www.minneapolisiparks.org/_asset/r06p00/2017-Approved-budget-for-website.pdf.
50. OMB, "AIMS Agency Reconciliation," FY 2006 and FY 2017.

51. OMB, "Register of Community Board Budget Requests: For the Adopted Budget, FY 2017," <http://www1.nyc.gov/assets/omb/downloads/pdf/cbrboro6-16.pdf>.
52. OMB, "Community Geographic Report 2016," http://www.nyc.gov/html/omb/downloads/pdf/cbgeo6_15.pdf.
53. DPR, "Annual Report on Parks Maintenance 2016," https://www.nycgovparks.org/pagefiles/109/NYC-Parks-Maintenance-Report-FY2016__584099ebb05cc.pdf.
54. OMB, "Agency Performance Indicators: DPR," <https://data.cityofnewyork.us/report/mmr/DPR/how-we-performed#3a>.
55. Chicago Parks District, "2017 Budget Appropriations," https://www.chicagoparkdistrict.com/sites/default/files/documents/page/2017_BUDGET_APPROPRIATIONS_0.pdf.
56. OMB, "Mayor's Management Report, FY 2017."
57. Center for an Urban Future analysis of New York City's Modified Expense Budgets, 1970–1979, accessed from the Municipal Library.
58. John Krinsky and Maud Simonet, "Who Cleans the Parks? Public Works and Urban Governance in New York City," (Chicago: University of Chicago Press, 2017).
59. Office of the Mayor, "Mayor Bill de Blasio, Council Member Ferreras-Copeland and Parks Commissioner Silver Launch Flushing Meadows Corona Park Alliance," November 16, 2015, <http://www1.nyc.gov/office-of-the-mayor/news/844-15/mayor-de-blasio-council-member-ferreras-copeland-parks-commissioner-silver-launch-flushing#/0>.
60. Tanay Warerkar, "Promised South Bronx Parkland Could Become Affordable Housing Instead," *Curbed New York*, May 8, 2017, <https://ny.curbed.com/2017/5/8/15578078/yankee-stadium-bronx-park-affordable-housing>.
61. NYC Parks, "Parks Restore Crotona Park's Indian Lake and Unveils New Amphitheatre," July 30, 2009, <https://www.nycgovparks.org/parks/crotona-park/dailyplant/21994>.
62. Van Cortlandt Park Conservancy, "Annual Report 2016," http://www.vcpark.org/images/PDF/VCP_AR2016_12%2019_Final%20-%20full%20size.pdf.
63. Dana Rubenstein, "Parks Advocates Tear Into a de Blasio-backed Proposal," *Politico New York*, <http://www.politico.com/states/new-york/city-hall/story/2013/11/parks-advocates-tear-into-a-de-blasio-backed-parks-proposal-009778>.
64. OMB, "FY 2018 Capital Budget," <http://www1.nyc.gov/assets/omb/downloads/pdf/cb7-17.pdf>.
65. Holly Leicht, "Capital Projects Testimony – New York City Council Parks & Recreation Committee," New Yorkers for Parks, <https://ny4parks.businesscatalyst.com/advocacy/Capital%20Projects%20Testimony%20-%20City%20Council%2011-19-13.pdf>.
66. Citizens Budget Commission, "Making the Most of Our Parks," June 2007, <http://www.ny4p.org/research/other-reports/or-makethemost07.pdf>.
67. NYC Parks, "Parks Inspection Program," <https://www.nycgovparks.org/park-features/parks-inspection-program/parks-inspection-data>.
68. Slattery, Murphy, and Blau.
69. Jamie Lee, "Staten Island's Crescent Beach to Get a Make-Over," *Staten Island Advance*, February 5, 2009, http://www.silive.com/southshore/index.ssf/2009/02/staten_islands_crescent_beach.html.
70. Lisa W. Foderaro, "Parks Commissioner Pledges to Speed Pace of New York City Projects," *New York Times*, April 22, 2015, <https://www.nytimes.com/2015/04/22/nyregion/parks-commissioner-pledges-to-speed-pace-of-new-york-city-projects.html>.
71. Mikelberg.
72. David Cruz, "Years in the Making, a Norwood Park Finally Gets Its Makeover," *Norwood News*, June 12, 2017, <http://www.norwoodnews.org/id=23518&story=years-in-the-making-a-norwood-park-will-finally-get-a-makeover>.
73. Eli Dvorkin, Maria Doulis, and Jonathan Bowles, *Slow Build: Creating a More Cost-Efficient Capital Construction Process for Cultural Organizations and Libraries in New York City*, Center for an Urban Future, April 2017, <https://nycfuture.org/research/slow-build>.
74. City of New York, "Memorandum of Understanding: Green Infrastructure Construction and Maintenance," November 9, 2011, http://www.nyc.gov/html/dep/pdf/mou/11092011_re-DEP-DOT-DPR-MOU_GreenInfrastructureConstructionandMaintenance.pdf.
75. Erik Baard, "Newtown Creek Bulkhead Collapses & Nobody Knows Who's Supposed to Fix It," *Gothamist*, January 11, 2016, http://gothamist.com/2016/01/11/newtown_creek_bulkhead_uhoh.php.
76. Office of the Mayor, "NYC's First Major Parks Equity Initiative Adds Nine New Sites for Reconstruction," September 20, 2016, <http://www1.nyc.gov/office-of-the-mayor/news/754-16/nyc-s-first-major-parks-equity-initiative-adds-nine-new-sites-reconstruction>.

77. OMB, Mayor's Management Report, FY 2017.
78. Lisa W. Foderaro, "Focusing on Lesser-Known Open Spaces in New York," *New York Times*, May 6, 2014, <https://www.nytimes.com/2014/05/07/nyregion/focusing-on-lesser-known-open-spaces-in-new-york.html>.
79. Charles McKinney, "Assessment of Park System Adequacy," shared with the Center for an Urban Future.
80. Peter Harnik, Charlie McCabe, and Alexandra Hiple, "2017 City Park Facts," The Trust for Public Land, 2017, https://www.tpl.org/sites/default/files/files_upload/CityParkFacts_2017.4_7_17.FIN_LO.pdf.
81. Minneapolis Park and Recreation Board, "About Us: History," https://www.minneapolisparcs.org/about_us/history.
82. Minneapolis Parks and Recreation Board, *Closing the Gap: First Five Years*, 2017, https://www.minneapolisparcs.org/_asset/mm7vsw/CTG_First_Five_Years_One_Pager.pdf.
83. City of Philadelphia, "Rebuild Philadelphia," <http://rebuild.phila.gov/about/what-is-rebuild>.
84. Philadelphia Water Department, "Green Stormwater Infrastructure," http://www.phillywatersheds.org/what_were_doing/green_infrastructure.
85. Dallas Parks and Recreation Department, "A Renaissance Plan for Dallas Parks and Recreation in the 21st Century," August 2002, <http://www.dallasparcs.org/DocumentCenter/Home/View/329>.
86. OMB, Mayor's Management Report, FY 2017.
87. Emily Frost, "Upper West Side Recreation Center to Reopen After Long-Awaited \$15M Makeover," *DNAinfo*, March 3, 2013, <https://www.dnainfo.com/new-york/20130318/upper-west-side/upper-west-side-rec-center-reopen-after-long-awaited-15m-makeover>.
88. "Parsons Partners With NYC Parks to Improve Sunset Park Recreation Center and Pool," New School Press Room, <http://www.newschool.edu/pressroom/pressreleases/2015/ParsonsNYCParksSunsetPark.htm>.
89. Anna Ruela-Browne, "Brownsville's Oasis Suffers from City's Disregard," *Brooklyn Ink*, July 24, 2012, <http://brooklynink.org/2012/07/24/46404-brownsvilles-oasis-suffers-from-the-citys-disregard>.
90. OMB, Mayor's Management Report, FY 2017.
91. Aaron Short, "The Politics of McCarren Park Pool," *The Awl*, July 9, 2012, <https://www.theawl.com/2012/07/the-politics-of-mccarren-park-pool>.
92. Rich Calder, "McCarren Park Pool Full of Leaks After \$50M Renovation," *New York Post*, May 2, 2015, <http://nypost.com/2015/05/12/iconic-swimming-pool-full-of-leaks-after-50m-renovation>.
93. Kim Velsey, "So Much for Making a Splash: What Happened to the High Dive?," *New York Observer*, August 2015, <http://observer.com/2015/08/so-much-for-making-a-splash-whatever-happened-to-the-high-dive>.
94. Winnie Hu, "Getting New Yorkers Into the Wilderness. All 10,000 Acres of It.," *New York Times*, August 12, 2013, <https://www.nytimes.com/2016/08/12/nyregion/new-york-city-parks-trails-forests.html>.
95. NYC Parks Department and Natural Areas Conservancy, "Forest Management Framework in New York City," <http://naturalareasnyc.org/content/forests/fmf-f6-hires-singles-reduced.pdf>.

ADVISORY BOARD

The Center for an Urban Future would like to acknowledge the support we received from members of an advisory board created for this project. Their feedback was extraordinarily helpful in shaping *A New Leaf* and we are grateful for their input. This report does not necessarily represent the views of these individuals or their organizations and should not be interpreted as an endorsement.

Adrian Benepe, The Trust for Public Land

Susan M. Donoghue, Prospect Park Alliance

Oded Horodniceanu, U.A. Construction Corporation

Lynn Kelly, New Yorkers for Parks

Maura Lout, Central Park Conservancy

Nilka Martell

Charles McKinney

Lynden B. Miller, Public Garden Design

John Natoli

Lucy Robson, New Yorkers for Parks

Carter Strickland, The Trust for Public Land

Christina Taylor, Friends of Van Cortlandt Park

Ana Traverso-Krejcarek



Center for an Urban Future

120 Wall Street, Floor 20

New York, NY 10005

This report and all other publications issued by the Center for an Urban Future can be viewed at www.nycfuture.org. Please subscribe to our monthly email bulletin by contacting us at cuf@nycfuture.org or (212) 479-3344.