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A New Leaf: Revitalizing New York City's Aging Parks Infrastructure

New York City's public parks are busier than ever. But the combination of advanced age and decades of insufficient maintenance means that parks across all five boroughs are facing serious infrastructure challenges.

by John Surico

- The following is the introduction to A New Leaf: Revitalizing New York City's Aging Parks Infrastructure
- Read the full report (PDF)
- View the recommendations from this report

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. 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 guarter of New York's parks are at least 84 years old, and one park in 10 was built before 1898.

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.

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 belowgrade 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 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."

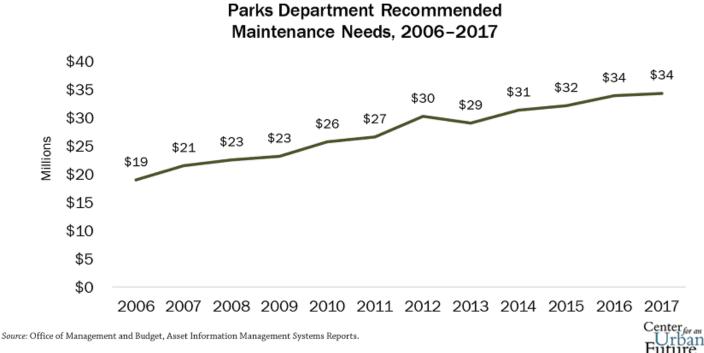
The Parks Department is also responsible for 148 miles of coastline, including beaches, marinas, and docks—properties that are extremely expensive to maintain, yet integral to the health of the city's coastline. However, due to rising costs, growing usage, and decades' worth of deferred maintenance, 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." 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 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. 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, just 12 percent of that request was actually funded—one of the lowest rates among city agencies. 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.

Since the 1970s fiscal crisis, the full-time staffing headcount of the Parks Department—including full-time and full-timeequShare:onf-ithe:Rarks:Departmentis:State:ief:iGood:Repair workforce over time. Although staffing increased 11 percent between 2014 and 2016, nearly every expert we interviewed says that managed Saffy exist in Color to the Share of Needs Repair Needs Met cities, with vons quences for the total up to the loss of the loss bathrooms go without water, drainage systems get blocked and cause flooding, walls deteriorate, and plantings and forests die. For in Yang New York sid 120 20 to the Olympianers cityw 160 2 new 1900 for es of parkland 10 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 Companson, the Sas Andsc4 Asception and Parks Separation of 5.5s. 000 000 gardeners for 61.13 ceres 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. Asimilar 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 Parks Conservance had a \$52.5 million operating budges in FX 2916, 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 hopportunal staff of 13 to 12 to 13 to 13 to 14 to 15 level of maintenance staffing that the rest of the city's parks sorely lack. **FY15** \$509.671.000 \$59,163,000 11.6% \$555,628,000 \$63,402,000 FY16 11.4% \$589,098,000 \$88,326,000 15.0% FY17

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

Urban Future 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.

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 mean and prant of pacitics are the property of pacitics and package of the property of pacitics are the property of pacitics and package of the package of the property of pacitics are the property of pacitics and package of the pac

To target these forgotten parks, the de Alasio administration anched 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.

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, largescale 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 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. A similar project in Brooklyn took seven years and \$2 million to build. According to a New York Daily News investigation, the Parks Department had 43 projects delayed for five or more years in 2017.

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.

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."

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.

- 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.
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- The following are recommendations from A New Leaf: Revitalizing New York City's Aging Parks Infrastructure
- Read the full report (PDF)

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 relaunch 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.

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