R

KAPLAN CHAIR 2019-2020

P

PETERSON RICH OFFICE

O

Peterson Rich Office

Introduction

The New York City Housing Authority (NYCHA) provides subsidized housing to over 400,000 New Yorkers in 326 public housing developments across the City's five boroughs. Starting with a single development on the Lower East Side that opened in 1935, NYCHA has grown to be the largest housing authority in the United States and is New York's most prolific landlord, housing almost 8% of all New Yorker renters. **If NYCHA were its own city it would be larger than Cleveland, Tampa, and Pittsburgh.**

NYCHA provides 74% of New York City apartments with a rent of less than $500 per month and 51% of the City's rentals leased at under $800 per month. With its residents bringing home median household income of $17,088 a year, NYCHA meets the housing needs of many of New York City's lowest-income households. But with a projected operating deficit of $75 million dollars beginning in 2022 [1] and a deferred maintenance deficit of $25.4 billion dollars over the next five years [2], NYCHA is at risk. Without the New York City Housing Authority, no other housing provider would likely be able to fill the housing needs of most of NYCHA's residents. Furthermore, the top three employers of NYCHA residents are The New York Police Department, The Department of Education, and NYCHA itself. **The top nine of ten employers of NYCHA residents are all of New York City's public systems. NYCHA is therefore critical to the continued functioning of our city.**

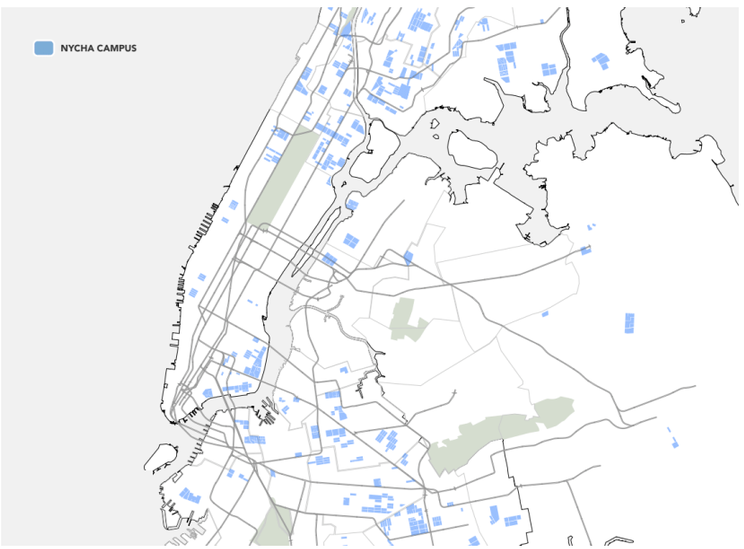
NYCHA's 2017 Physical Needs Assessment estimated $31.8 billion dollars in repairs citywide by 2022. Of this amount, 33.6% is needed for Structural and Architectural upgrades, 18.7% for Building Systems, and 39.6% is needed to renovate apartment interiors. What these numbers reveal is that this is very much an architectural problem.

With the support of the J. M. Kaplan Fund and the Regional Plan Association, in this book, we explore scalable design solutions aimed at modernizing NYCHA's buildings and campuses to better the living conditions of each NYCHA resident while ensuring NYCHA's future.

1 While NYCHA was able to end 2019 with a balanced budget, the 2020-2024 Adopted Operating Plan projects a deficit of $75 million beginning in 2022. New York City Council report of the Finance Division on the Fiscal 2021 preliminary plan, March 13, 2020

2 NYCHA 2017 Physical Needs Assessment

NYCHA Data



[Left] NYCHA is spread across every part of New York City, comprising 326 developments shown here in blue

Larger than the next 11 US public housing systems combined, NYCHA is the nation's oldest and largest public housing authority. NYCHA houses a diverse set of New Yorkers including 77,000 seniors and 110,000 children under the age of 18.

NYCHA Facts:

Median Household Income — $17,088

Median Rent —$500

Total Citywide Built Area* — 157,000,000 SF

Mean Built Area per Parcel* — 167,000 SF

Total Citywide Available Floor Area* — 78,000,000 SF

Mean Available Floor Area per Parcel* — 37.8%

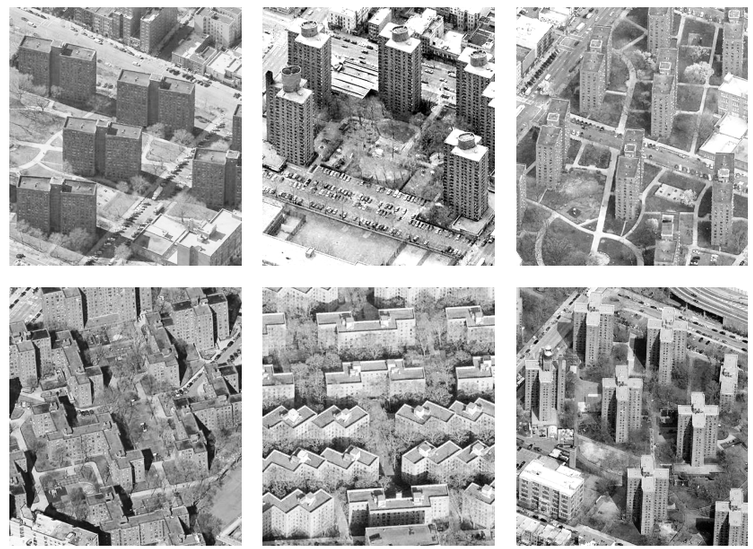
Citywide Mean Lot Coverage* — 31.7%

Citywide SF of open space — 13,400,000 SF

* Estimations based on NYC DCP PLUTO 18V1 and NYC DOITT Building Footprints 2018

The Buildings

[Right] NYCHA mid-rise brick buildings are ubiquitous in New York



The vast majority of NYCHA's 2553 buildings are mid-rise brick structures, built in the two decades after World War II. They are ubiquitous in New York, comprising more than 175 million square feet on relatively open sites that often span several blocks. The buildings are typically repeated forms, deployed in geometric patterns across green campuses. Despite vast tree canopy, these green spaces are often inaccessible to both NYCHA residents and the public, fenced off to mitigate maintenance costs.

Likewise, buildings are set back from the street edge, which is often lined with moat-like surface level parking, enforcing a sense of separation between NYCHA residents and the rest of the city. Building entrances are often far from the street making it difficult for visitors, emergency personnel, and delivery people to navigate NYCHA campuses. All of this has led NYCHA's campuses, and its residents, to be physically isolated from their surrounding neighborhoods.

The Challenges

STRUCTURE/ARCHITECTURAL

- Includes roofs, façades
- $10.69B (33% of total)

SYSTEMS

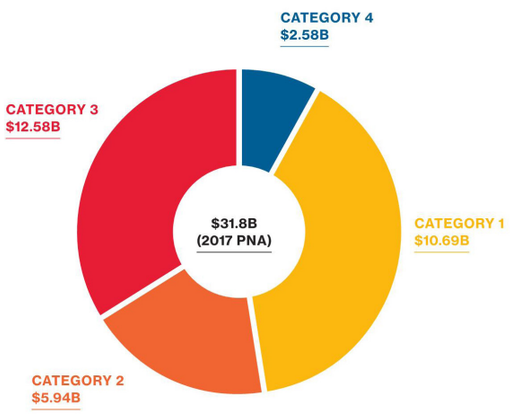
- Includes boilers, elevators
- $5.94B (19%)

APARTMENTS

- Includes kitchens, bathrooms
- $12.58B (40%)

SITE/GROUNDS

- Includes playgrounds, sidewalks
- $2.58B (8%)



[Left] NYCHA is spread across every part of New York City, comprising 326 developments shown here in blue

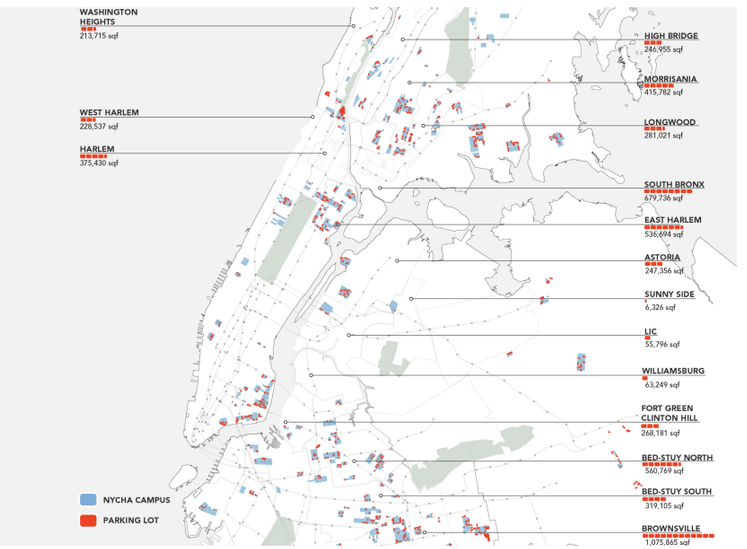
Lacking the funding to provide much-needed upgrades, the buildings have fallen into critical disrepair. Constructed long before contemporary energy efficiency standards, the majority of NYCHA's building stock is uninsulated, causing NYCHA buildings to consume on average 40% more energy than the median multi-family building across New York City. Nearly 90 percent of the units lost heat and hot water at some point last winter between Oct. 1, 2018, and May 31, 2019. Units across the City have leaky roofs, mold, unreliable heating systems, broken elevators, and other problems that NYCHA constantly works to address but cannot afford to fix in a comprehensive way.

NYCHA conducts a physical needs assessment roughly every 5 years. In 2011 the assessment identified a deferred maintenance deficit of $95k/unit, or roughly $16.8 billion. By 2017, this estimate goes up to $25.4 billion. Without dramatic intervention, problems will compound and this number will continue to escalate.

According to some estimates, by 2027 the cost to repair NYCHA will exceed the cost to demolish and rebuild it.

The Opportunities

[Right] NYCHA mid-rise brick buildings are ubiquitous in New York

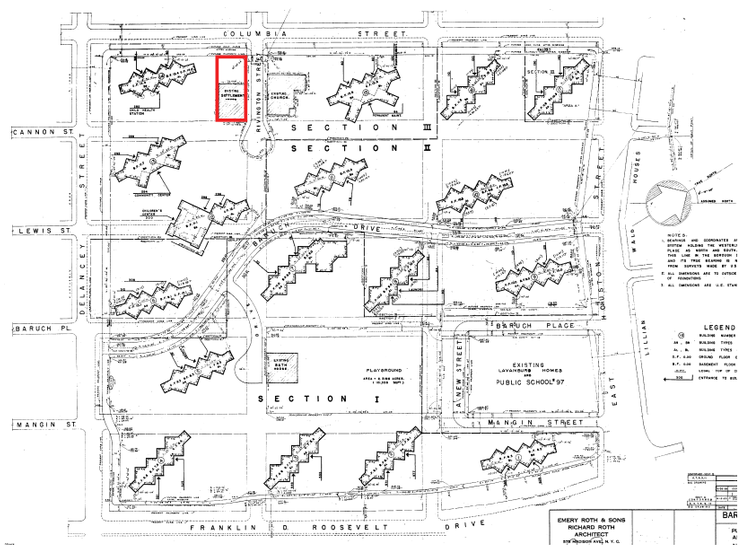


NYCHA is sitting on one of the largest reserves of underutilized development rights in the history of New York City, with more than 20 million square feet of surface level parking lot and 80 million square feet of unrealized as-of-right developable floor area.

The average building lot coverage across NYCHA's portfolio is 27.6% with the majority of developments covering only 20% or less of their site area, significantly less than the 60%-70% lot coverage allowed in medium and high-density R- zoning districts.

By thinking at the scale of the neighborhood and subsequently the entire city, these resources could be leveraged to repair existing buildings, ensure NYCHA's present and future financial health, and better integrate NYCHA into its surrounding communities.

Current Strategies

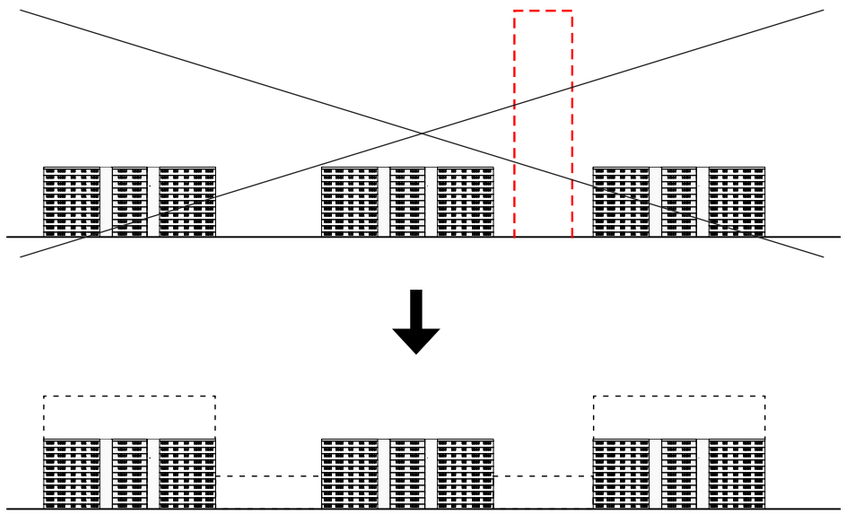


[Left] Next Gen NYCHA RFP site at the Baruch Houses shown in red

Despite the low ratio of built to unbuilt space, NYCHA developments actually have very few viable sites for infill development. NYC Zoning requires a 60 foot window-to-window distance between habitable residential spaces. Offsetting the perimeter of existing building sites quickly reveals that very few sites meet this criteria.

As a result, absent a zoning variance or a Mayoral Zoning Override, even the most spacious of NYCHA campuses often have only one or two sites available for new free standing construction. NYCHA's recent RFPs for infill demonstrate this problem by parceling off single sites for maximum build-out on otherwise vast campuses, like the Baruch Houses site above. In most cases this has led to proposals for isolated towers that do little for existing residents or the urban fabric. In some cases, such as the proposal at Holmes towers, residents resisted these developments to the point that they were canceled.

AN INTEGRATED APPROACH TO DEVELOPMENT AT NYCHA IS CRITICAL



As detailed in a recently released report by NYCHA, "Connected Communities Guidebook", these strategies must be approached in a comprehensive way. Critical to this process will be community engagement and the implementation of ideas through a participatory design process. Authentic partnerships need to remain a priority, not just at the beginning of design and planning, but all the way through execution and maintenance. The role of existing open spaces and the need to improve them must be balanced with the need to rehabilitate existing buildings and new construction. The strategies presented here are consistent with NYCHA's new guidelines, and the following are specific elements that must be part of any comprehensive plan:

- Must be guided by empowered community participation
- Must meet all of the physical repair needs of the host site
- Must create better and increased use of exterior spaces
- Prioritize preserving functional open space and keeping healthy full-grown trees
- Must improve energy performance of existing buildings
- Must reduce overall operating budget

Case Study: Cooper Park Houses, Brooklyn

[Left] Cooper Park Houses

For the purposes of illustrating the potential for comprehensive campus planning, renovation, and development, we have looked more closely at the Cooper Park Houses in Brooklyn as a typological example. Like many NYCHA campuses, this site has several repeated building forms set back from the street edge, low lot coverage, and is sited on a super block. Of the estimated $120 million dollar capital needs for this campus, 94% is concentrated on building systems, building interiors, and exterior upgrades. Additionally, Cooper Park only utilizes 54% of its as-of-right zoning floor area, leaving 550,000 square feet of area available to develop or sell.

The depictions of buildings and public spaces shown here are aimed at contributing to a healthy debate, and to illustrate what could be possible through a participatory design process. The goal is to push the conversation towards identifying what questions should be asked and answered, and to reveal what might be possible if we all work together towards a common design vision.

Cooper Park Houses Data:

Total built area	655,163 SF
Remaining FAR	550,836 SF
Lot Coverage	16.7%
Total # of Units	721

Existing Site Plan

The 60'-0" window to window distance required for new buildings (shown here in gray), reveals the few available sites for new buildings at Cooper Park, and just how limited this tool is for unlocking the latent potential of NYCHA's unbuilt FAR. It also makes it clear that infill alone will not generate enough revenue to have a meaningful impact on the host campus residents or their homes.

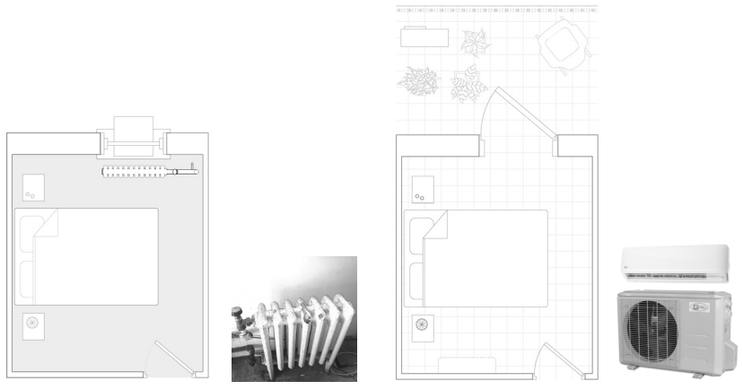
The example above reveals three available sites, however, due to the lack of street access, sites 1 and 3 are not viable. Site 2 is the location of a playground and ball court that has seen recent renovations and is managed by NYC Parks Department, making it an inappropriate if not impossible site for a new building.

Proposed Site Plan

If instead, new construction were conceived of as an extension of the existing buildings, the potential sites for new construction expand considerably. New, low rise extensions at the street provide an urban edge to the campus, activating the street edge and providing articulation to the existing green spaces.

Providing access to the NYCHA buildings directly off of the street will mitigate issues of wayfinding on campus. Likewise, new residents at the Cooper Park Houses are not isolated on a sub-parcel, but are instead integrated into the campus fabric.

Modernize the Existing Systems



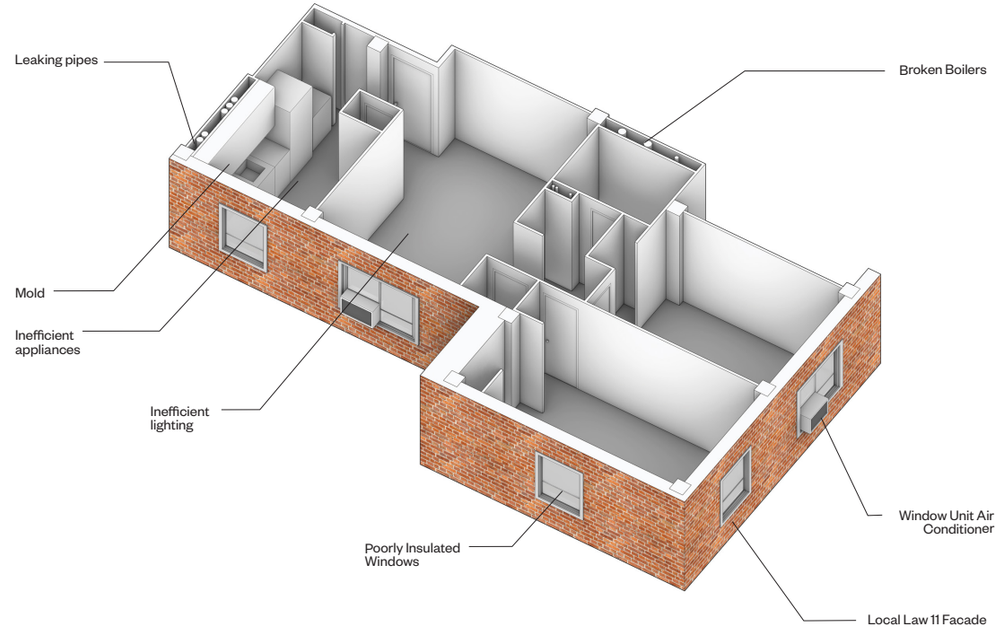
[Far Left] Current system of steam radiators and window air conditioners at left.
[Near Left] Proposed electric split system with balcony condenser and wall cassette at right

Like most NYCHA developments, the buildings at Cooper Park are heated and cooled by outdated systems. Heat is provided by a two-pipe steam system, which consists of a gas-fired basement boiler that sends steam into cast iron pipes and then radiators, which are hot to the touch and exposed in the apartments, like the one seen above at left. These systems are highly inefficient, with higher temperatures on lower floors, and significant heat loss at the upper floors as the steam travels vertically. There is no individual control over the radiators in the apartments, and lower floor residents frequently open their windows in the wintertime because the heat is so high. Furthermore, the systems are old and frequently break. Nearly 90 percent of the units lost heat and hot water at some point last winter between Oct. 1, 2018, and May 31, 2019.

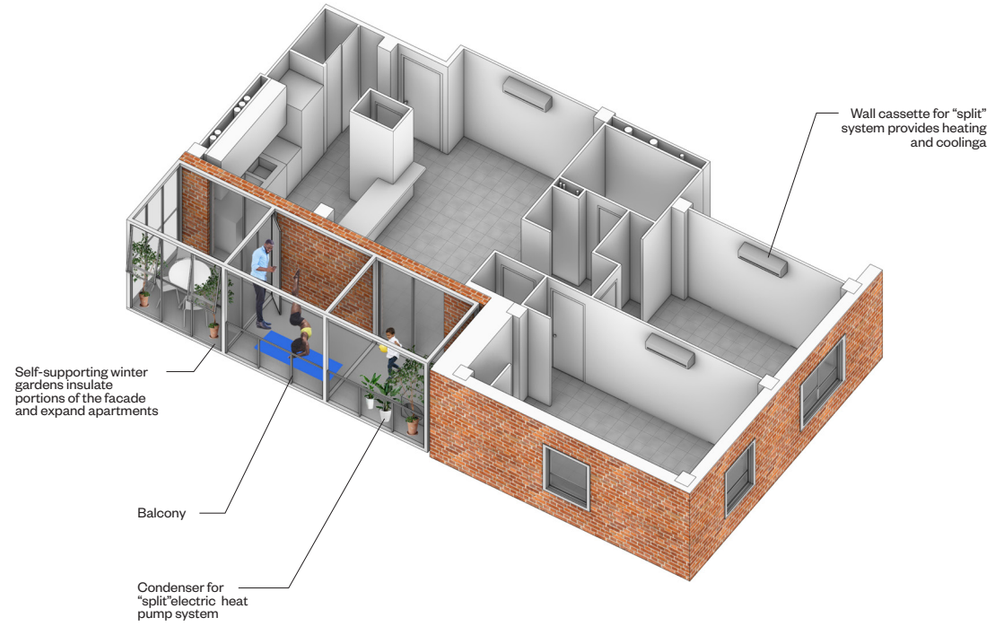
Cooling is not generally provided by NYCHA, but individual residents install window air conditioning units. The units are often left in place year-round, allowing heat to leak out in winter months.

Contemporary electric "split systems" could provide energy-efficient heating and cooling, with individual resident control. Condensers would be placed on new exterior balconies, and wall-based cassettes would be installed on interior walls. Per the drawings above, this would free up space in and under windows currently taken up by radiators and window units.

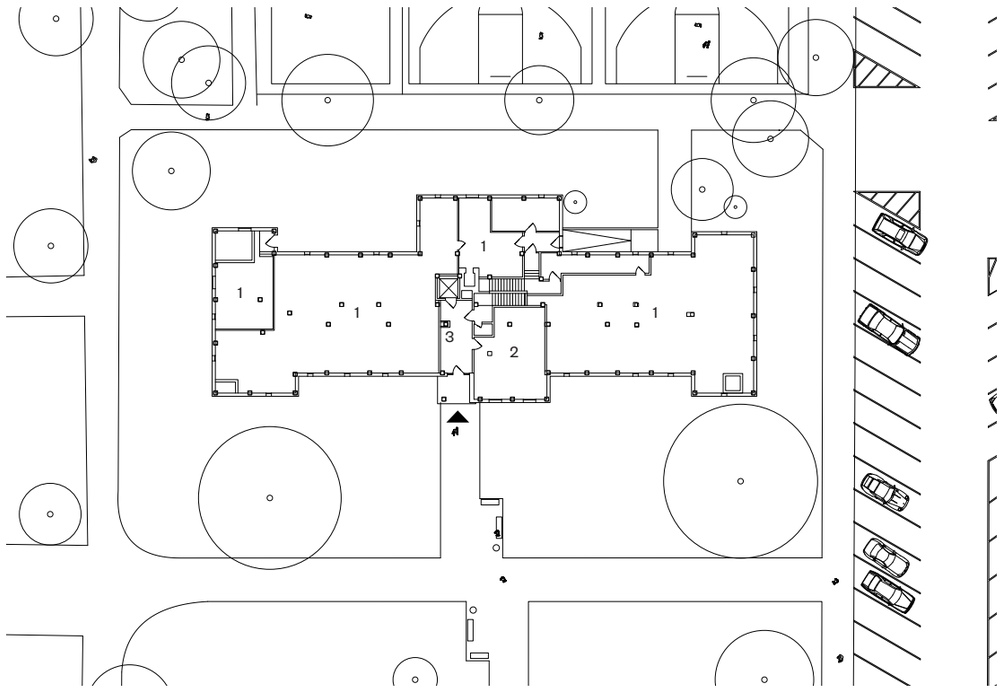
Current



Proposed



Existing Building Ground Floor Plan



1 Building Services
2 Storage
3 Lobby

As is the case in many NYCHA buildings, the ground floor of the Cooper Park Houses is primarily unoccupied. Most of the space is empty building service plenum. The lobbies that do exist are small, dark, and have ADA accessibility issues. In particular, for senior residents, the long walk from the street into the building lobby can be problematic.

Without a direct connection to the ample outdoor spaces from within the ground floor of the existing buildings, a meaningful connection to the landscape is impossible.

Proposed Building Ground Floor Plan

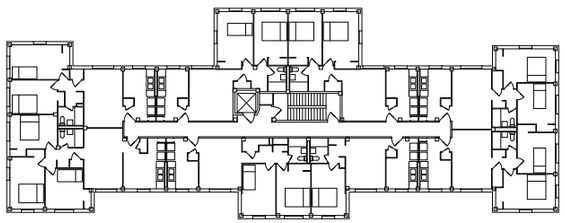
1 lobby
2 mail/package
3 rec room
4 bike storage
5 laundry
6 building service
7 studio apartment
8 one bed apartment
9 two bed apartment
10 general storage

The new extensions take over the otherwise unoccupied ground floor space, activating the landscape and street. New lobbies open directly to the street and project through the entire ground floor, flanked by new amenity spaces including daylit laundry rooms, mail and package rooms, bike storage, and recreation spaces for families. This activates the common spaces and connects interior programs to exterior spaces and natural light.

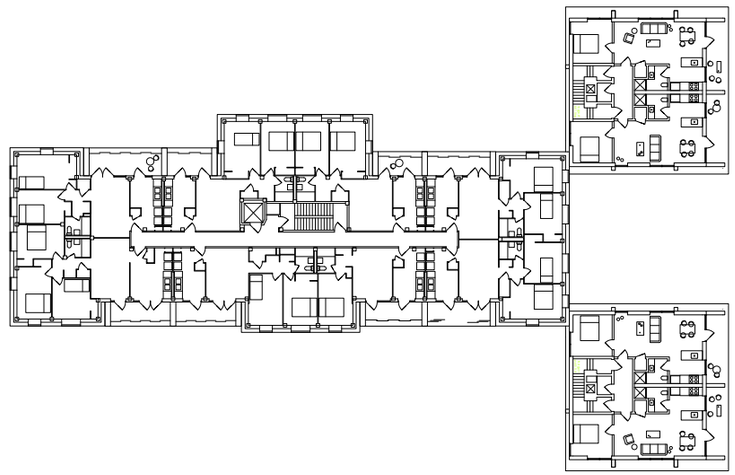
Further, new ground floor units provide opportunities for right-sizing older residents into apartments that can provide contemporary accommodations that meet the needs of NYCHA's elderly population.

Urban design principles aimed at Improving the quality and access to passive and active recreation areas goes in hand with improving social determinants of health. In addition to increasing opportunities for physical activity, redesigned exterior spaces can perform environmental benefits such as stormwater management and reduction of heat island effect, which would improve the efficiency of our city's water and energy infrastructure systems.

Existing Upper Floor Plan



Proposed Upper Floor Plan



1 circulation
2 private balcony
3 studio apartment
4 one bedroom apartment
5 two bedroom apartment
6 three bedroom apartment

NYCHA campuses were built for post-World War 2 nuclear families. Roughly 60% of existing units are two bedroom apartments, and 25% are three bedroom apartments. This is dramatically at odds with current need. According to citylab data, 39,086 persons 62 years and over are living alone in NYCHA. City-wide 35% of the two-bedroom apartments are under occupied.

At the upper floors, the new extensions are both part of the existing buildings and something entirely new. Each existing apartment receives a new private outdoor balcony space.

The new additions are attached to the existing buildings but don't block existing windows or rooms. They have their own circulation cores and could expand the number of studio and one-bedroom apartments, re-aligning NYCHA's building stock with 2020 NYC residential needs. This also allows for the right-sizing of existing tenants from over-sized apartments, making room for new families that need the extra space.

CURRENT COOPER PARK UNIT MIX:

10% ONE BED

14% THREE BED

61% TWO BED

15% FOUR BED

PROPOSED UNIT MIX:

6% STUDIO APT

10% THREE BED

20% ONE BED

11% FOUR BED

47% TWO BED

Who are we

About the Regional Plan Association

Regional Plan Association is an independent, non-profit civic organization that develops and promotes ideas to improve the economic health, environmental resiliency, and quality of life of the New York metropolitan area. We conduct research on transportation, land use, housing, good governance, and the environment, and advise cities, communities, and public agencies.

Some of the region's most significant public works, economic development and open space projects have their roots in RPA ideas and initiatives, from the location of the George Washington Bridge to the revitalization of downtown Brooklyn, Stamford, and Newark to the preservation of open space and development of parks in the Palisades, Governors Island and Gateway National Recreation Area. RPA has pursued these goals by conducting independent research, planning, advocacy, and vigorous public-engagement efforts. Every year, leaders and professionals from government, business, and civic groups debate the region's most pressing challenges at RPA's spring conference, the Assembly. A cornerstone of our work is the development of long-range plans and policies to guide the region's growth. Since the 1920s, RPA has produced four landmark plans for the region. The most recent was released in November 2017.

About Peterson Rich Office

Peterson Rich Office (PRO) is an interdisciplinary design studio founded in 2011 by Miriam Peterson and Nathan Rich specializing in cultural and residential projects.

PRO has been recognized for work at multiple scales, from awards by Architizer and the American Institute of Architects, to feature articles in the New York Times. In 2018 PRO was awarded the New Practice New York prize by the American Institute of Architects and was named to the 2018 'Design Vanguard' by Architectural Record Magazine. In 2020, Miriam Peterson and Nathan Rich were recognized by the Architectural League of New York as 2020 Emerging Voices.

For the past six years, PRO has been working on a series of strategic design proposals that look to improve the lives of NYCHA residents across New York City.

About the J. M. Kaplan Fund

Established in 1945 by philanthropist and businessman Jacob Merrill Kaplan, the Fund has since its inception been committed to visionary innovation. Over its 75-year history, the Fund has devoted $250 million to propel fledgling efforts concerning civil liberties, human rights, the arts, and the conservation and enhancement of the built and natural worlds.

About Kaplan Chair

With generous support from The J. M. Kaplan Fund, Regional Plan Association has established an endowed chair in honor of Richard Kaplan, a long-serving board member, inspiration, and friend. The Richard Kaplan Chair for Regional Design provides dedicated resources for a prominent urban designer to pursue innovative research and creative planning for the New York metropolitan region.

During his long association with RPA, Richard Kaplan supported diverse projects, from the seed money to create the Alliance to Rebuild Downtown New York and the Governors Island Alliance to a fact-finding trip to Copenhagen for the City's Planning Chair and DOT Commissioner which yielded bold plans to remake New York City's streets and public spaces for pedestrians and bicyclists. Richard's devotion to outside-the-box thinking, his towering ambitions, and his willingness to challenge the status quo has and continues to inspire RPA's design initiatives in the tri-state region.

Acknowledgments

Special thanks to Moses Gates, Marcel Negret, and Rose Harvey from the RPA for their collaboration and support.