



Capital Plan

Calendar Years 2019-2023

December 19, 2018

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Overview

NYCHA’s 2019 – 2023 Capital Plan provides approximately \$6.385 billion in planned commitments for infrastructure improvements, major modernization, other systemic upgrades and repair, resiliency, and fortification of developments damaged or impacted by Superstorm Sandy. The Plan is based on the current federal capital funding outlook, funding from local elected officials and the City of New York, as well as expected disaster recovery in the wake of Superstorm Sandy.

The Plan includes \$4.8 billion in City and Federal funds to address deteriorated heating, elevators, facades and roofs. The City Plan includes \$1.2 billion to address lead, mold, heating, elevators and pests). The Federal Plan includes \$124 million to address building exteriors, including brick and roof projects and another \$114 million to address elevator replacements. The State Plan includes \$350 million for boilers and \$100 million for elevator replacements. Overall, of the \$6.385 billion dollars included in this Plan, 33.1% is from Annual Federal Capital Grants, 42.2% is from the City of New York, 7.0% comes from the State of New York, and 17.6% comes from other sources (Community Development Block Grant, Disaster Recovery, and Other).

All Funds (In Thousands)

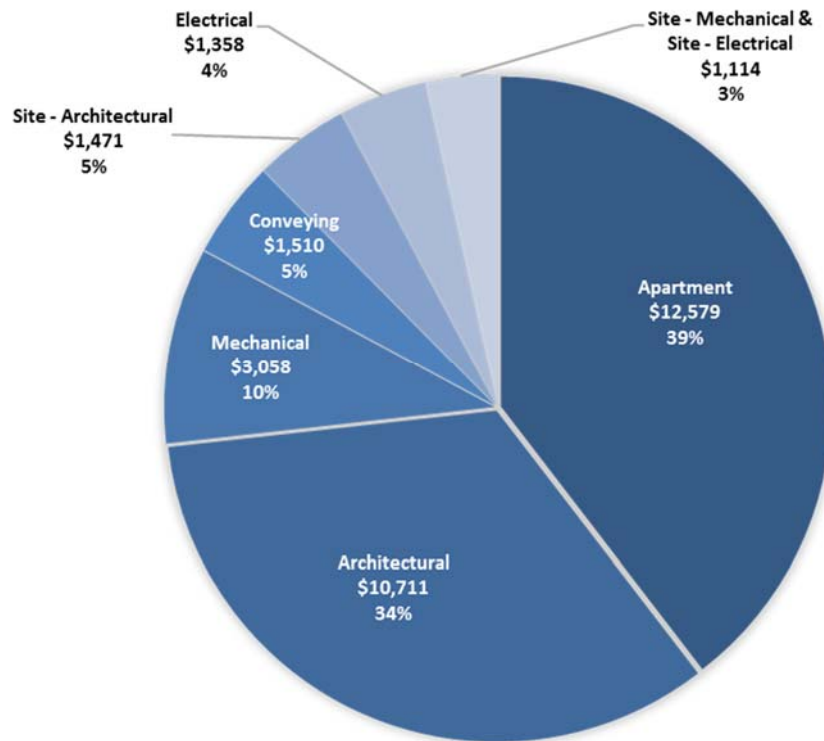
Funding Sources	2018 Carry Forward Balance	2019 New Funds Available	Total Available for 2019	2020	2021	2022	2023	2019- 2023 Plan Totals
Federal	582,831	306,356	889,187	306,356	306,356	306,356	306,356	2,114,611
City	511,047	695,196	1,206,243	429,122	336,000	386,000	336,000	2,693,365
State	450,000	-	450,000	-	-	-	-	450,000
Community Development Block Grant (CDBG)	-	125,074	125,074	20,089	20,089	21,411	20,000	206,663
Disaster Recovery	825,041	-	825,041	-	-	-	-	825,041
Other	94,866	-	94,866	-	-	-	-	94,866
Grand Total	2,463,785	1,126,626	3,590,411	755,567	662,445	713,767	662,356	6,384,546

NYCHA’s Chronic Funding Gap

NYCHA’s aging housing stock requires far more capital investment than has been available from Federal, State, and City grants. Of NYCHA’s 2,371 residential buildings, 75% are more than 40 years old and have over \$31.8 billion dollars in capital needs in the first five years of NYCHA’s 2017 Physical Needs Assessment (PNA) .

Five Year PNA – NYCHA’s Capital Needs

(In Thousands)



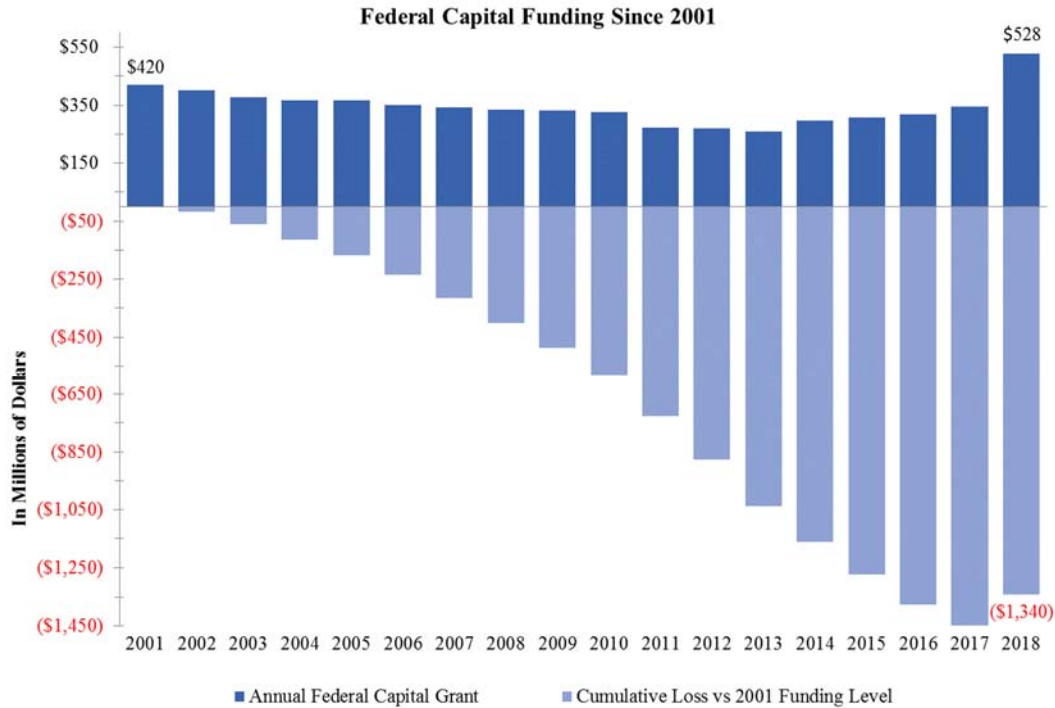
\$31.8 Billion

Funding available to NYCHA for capital improvements has not only failed to keep pace with growing needs, but has historically declined. From 2001 to 2017, annual federal capital grants have declined \$74 million, or 18%, from \$420 million to \$346 million. In 2018, for the first time in 17 years NYCHA was awarded \$528 million, \$109 million more than the \$420 million in 2001, reducing the cumulative federal capital grant funding loss of \$1.449 billion since 2001 to \$1.340 billion. Despite the increase in appropriations to the Capital Fund program over the last three years, rising costs continues to result in very real cuts to the program. This chronic funding gap has severely constrained NYCHA’s ability to make necessary repairs and upgrades to brickwork, roofs, elevators, building systems (such as heating and plumbing systems), and apartment interiors.

Federal Capital Funding Since 2001

NYCHA has experienced a cumulative federal capital grant funding loss of \$1.34 billion since 2001. Funding shortfalls have meant that only \$1.79 billion has been invested in capital improvements during the last five years (2014-2018). Over the last three years, there has been an increase to federal capital fund allocation. Continuous funding at the 2018 level of \$528 million would reduce the overall funding shortfall.

(In Millions)



NYCHA’s Capital Funding Sources

Federal Funding:

NYCHA is using a conservative approach in allocating the Federal Capital Funds by using the 2015 capital fund grant amount of \$306 million. Despite this assumption, the funding allocation for 2019 remains unclear. Below is a chart summarizing funding allocation by administering areas/departments.

All Funds (In Thousands)

Adminstrating Areas	2018 Carry Forward Balance	2019 New Funds Available	Total Available for 2019	2020	2021	2022	2023	2019- 2023 Plan Totals
Administration	1,874	-	1,874	-	-	-	-	1,874
IT	36,892	3,443	40,335	7,492	5,716	5,716	5,698	64,957
Operations	12,946	5,000	17,946	5,000	5,000	5,000	5,000	37,946
Supply Management	24	-	24	-	-	-	-	24
Capital Projects	455,663	228,283	683,946	228,667	230,443	230,443	230,443	1,603,941
Finance	75,431	69,631	145,062	65,197	65,197	65,197	65,216	405,869
Grand Total	582,831	306,356	889,187	306,356	306,356	306,356	306,356	2,114,611

Federal Deadlines

Federal capital grant awards requires NYCHA to meet deadlines for establishing contracts to perform work (obligation deadline) and completing work (expenditure deadline). If these deadlines aren’t met NYCHA may incur penalties, such as the forfeiture of funds. Accordingly, NYCHA places priority in achieving its Capital Plan obligation and expenditure targets. HUD requires housing authorities to obligate 90% of funds in 24 months and to expend 100% of funds in 48 months. If these deadlines are not met, housing authorities may incur penalties, such as the

New York City Housing Authority

forfeiture of funds. In 2018, NYCHA completed every one of its HUD mandated deadlines ahead of schedule.

(In Thousands)

Awards	Obligations Deadline	Expenditures Deadline	Current Modified Budget	Obligation	Expenditures	Funds Available	Obligation %	Expenditure %
CF2015	4/12/2017	4/12/2019	306,356	306,356	306,356	-	100%	100%
CF2016	4/12/2018	4/12/2020	318,733	314,722	287,957	4,011	99%	90%
CF2017	8/16/2019	8/16/2021	346,326	292,581	64,469	53,745	84%	19%
CF2018	5/29/2020	5/29/2022	528,246	53,222	14,609	475,025	10%	3%
Grand Total			1,499,661	966,881	673,392	532,780	64%	45%

Alternative Funding:

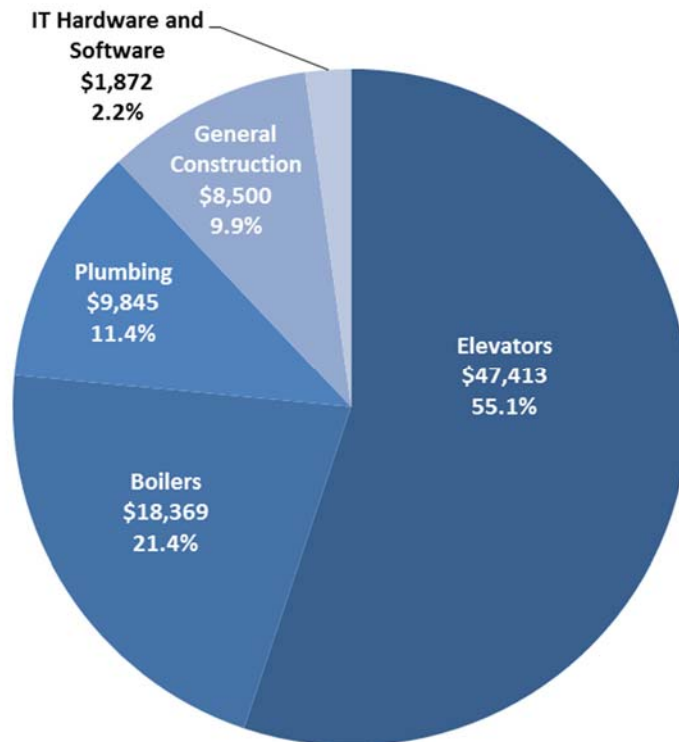
In 2018, \$86 million from Insurance Proceeds were made available to be allocated to projects that were considered priority.

Projects include:

- Elevator Communication Devices – system to enable residents and staff to contact authorized personnel in case of emergency or elevator malfunction.
- Tank Decommissioning – ceasing use by emptying oil and cleaning in preparation for converting to gas operation.
- Gas Risers – Replacement of gas risers at three developments (Douglas I, Throggs Neck and Washington) stairways – reconstruction of stairways in buildings at Red Hook Houses.

Insurance Proceeds for Capital

(In Thousands)



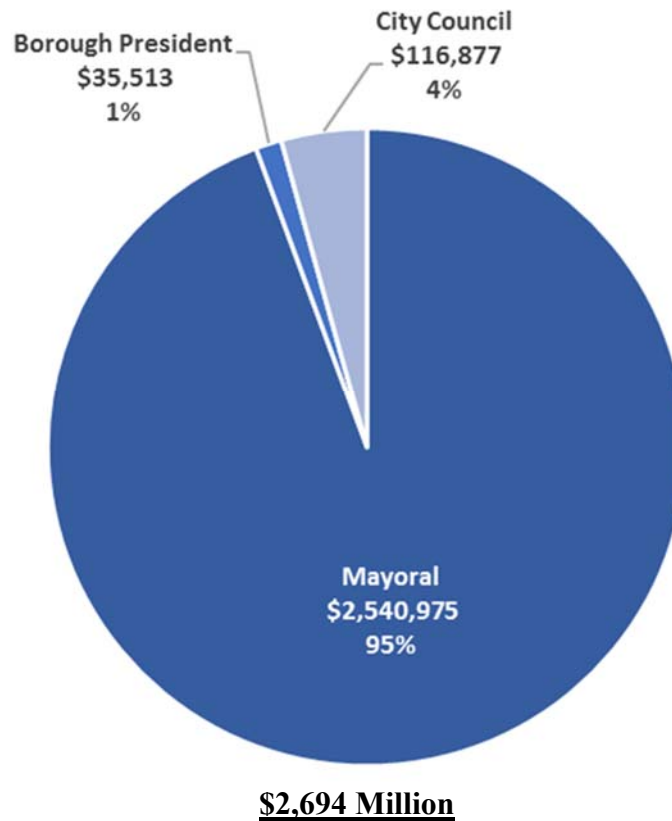
Total: \$86 Million

City Capital Funding:

Mayor Bill de Blasio has provided funding to NYCHA to address the needs of the aging infrastructure. The funding in this Plan is based on the City’s FY 2019 September Capital Plan and includes Mayoral initiatives as well as funding allocated by elected officials (Council Members and Borough Presidents).

FY19-23 City Capital by Funding

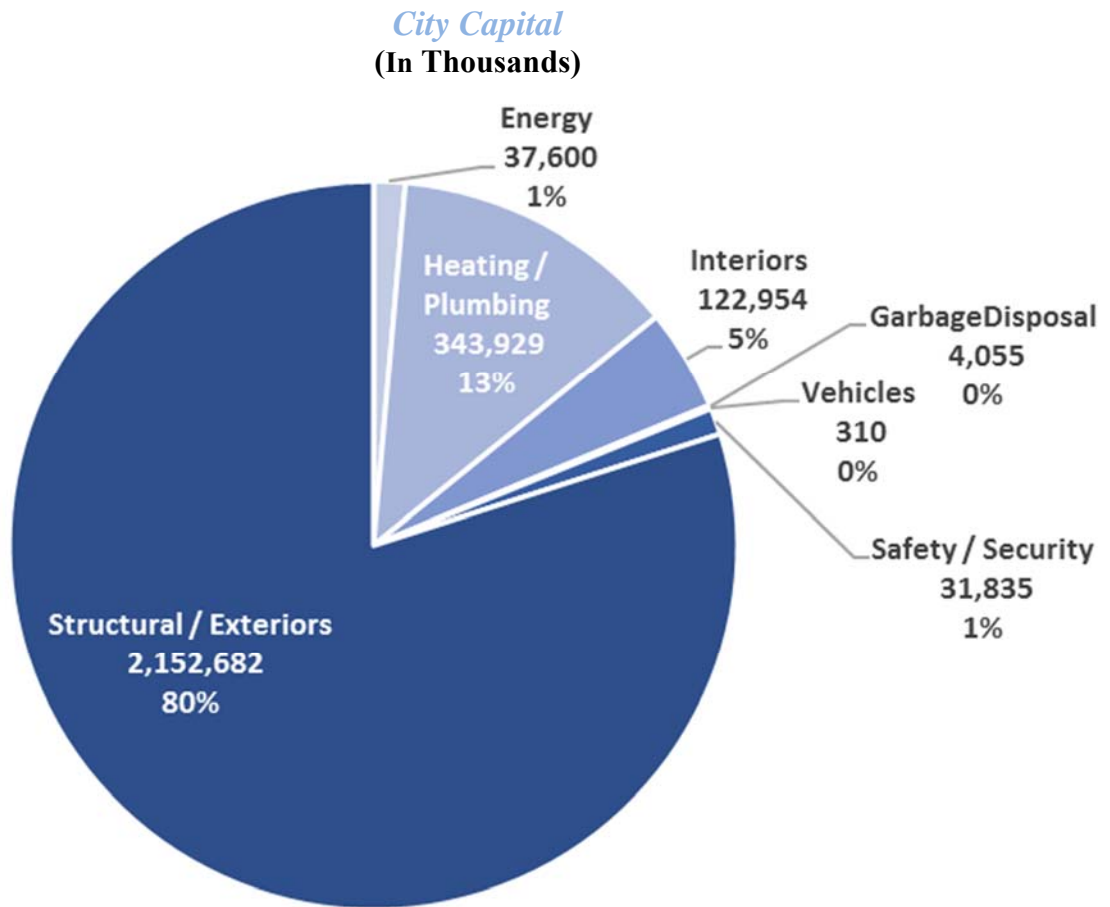
(In Thousands)



Projects include:

- Roofs - Investment of \$1.3 billion to replace over 950 deteriorating roofs on NYCHA buildings over the next 10 years. This commitment will not only fund the replacement of roofs and parapets (the protective wall along roofs), but it will also help to substantially reduce mold which can be detrimental to residents’ health. Leaky roofs are one of the key sources of the water and excessive moisture that can cause mold in apartments as well as physical damage to the building’s structure. This Five-Year Plan includes over \$505 million in funding.
- Hud’s Agreement (Lead) - Investment of \$1.2 billion to address Mold, Lead, Heating, Elevators and Pest.
- Rat Mitigation – Investment of \$19.4 million to reduce the rat population. The City allocated capital funding to replace dirt basement floors with concrete “rat pads” in prioritized NYCHA buildings within the Mitigation Zones. The cementing of basements, complemented by extermination and cleanouts, has been evidenced to reduce resident-generated work orders related to rats at NYCHA facilities by 40%.

- Heat: Investment of \$379.7 million to complete boiler work, installation of hot water heaters and installation of new gas rises in NYCHA developments across the city.
- Other: \$11.7 million.



Total: \$2,694 Million

2018 Accomplishments

Capital Projects Division

Completed Projects:

NYCHA's Capital Projects Division (CPD) succeeded in completing capital work at 120 developments in 2018, valued at \$204.8 million, impacting more than 79,000 families. There is ongoing construction at 217 developments, totaling \$1.1 billion, impacting over 150,000 families. The projects in the CPD portfolio include jobs funded primarily by Federal, State, and City stakeholders. The projects completed in 2018 and ongoing work include improvements to playgrounds, security enhancements, and fortifying NYCHA's building envelopes. Below are NYCHA's selected capital project highlights and accomplishments for 2018.

City Capital

Mayoral Roofing Initiative:

The Mayoral Roofing Initiative originally consisted of thirteen phases, now reconfigured to eight phases, provides a total of \$1.3 billion to replace aging roofs and to improve the lives of approximately 175,000 NYCHA residents in 952 buildings. Replacing the roofs will make buildings cooler and consume less energy as well as protect from water leakage to apartments.

Status:

Tranche I:

- Completed roof installations at 65 buildings at six developments.

Tranche II:

- Construction has started at 7 developments.
- Roofs were replaced at 21 buildings.

Tranche III:

- Construction has started at 7 developments.
- Letters of award were issued for construction at 2 additional developments. These are expected to commence construction in June 2019.

Tranche IV:

- 12 developments are in design phase, for a total of 133 roofs.

Local Law 11:

Pursuant to the Department of Buildings regulations, NYCHA proposes to repair the unsafe buildings and comply with NYC Local Law 11 requirements to repair all unsafe conditions found at the exterior walls of all NYCHA owned buildings city wide. All buildings higher than six (6) stories are required to be inspected once every five years. Upon filing an UNSAFE report, the owner, or person in charge, shall immediately commence such repairs or reinforcements as required to secure the safety of the public and make the facades conform to the provisions of the administrative code (RCNY §103-04). All unsafe conditions shall be corrected within thirty (30) days from the submission of the report (RCNY §103-04). Property owners must repair dangerous conditions within 90 days of filing a technical report (NYC DOB FISP).

A total of 105 buildings were completed at a cost of \$49.4 million by the end of 2018.

New York City Housing Authority

- Completed inspection at 79% of Cycle 8 of LL11 buildings.
- Increased the number of safe buildings in Cycle 8 from 184 to 560.
- Received authorization for approximately \$70 million.
- Expended approximately \$49 million for repair work and approximately \$12 million on sidewalk sheds.
- Removed approximately 74,778 LF of sidewalk sheds in 2018.

Security Enhancements:

- Completion of 5 MAP CCTV and 7 LAC projects in 2018
- Assignment of preconstruction task orders for the FY 2018 security portfolio. These were accomplished through assignments to TDX and STV in November 2018.

Quality of Life:

- Completed 8 grounds and landscaping projects.
- Completed 90% of legacy projects that were delayed due to inadequate sponsor funding and other challenges

Heating:

- Restored gas service at 1,772 apartments in 22 buildings
- Awarded three underground steam distribution restoration contracts
- Bids were executed for the boiler replacements and domestic hot water systems at the 11 identified developments under the Mayoral Heating Initiative

Energy & Sustainability:

Energy:

- HUD approved the \$104.5 million Ameresco B EPC on July 12, 2018. This EPC includes boiler replacement at Patterson houses, work which already has started.
- Completed LED upgrade of apartment and common-area lighting in the \$56 million Ameresco-A EPC, serving 19,954 apartments in 16 developments.
- Completed LED upgrade of apartment and common-area lighting in the \$68 million BQDM EPC, serving 16,844 apartments in 23 developments.
- Completed construction in the Weatherization Assistance Program (WAP). In the 2017-2018 program year, 990 apartments in 12 NYCHA developments had completed construction, for a total value of \$4.7 million. In the 2018-2019 program year, there were 820 apartments in 11 NYCHA developments in construction for a total value of \$3.5 million.

Sustainability:

- NYCHA released an RFP in October of 2017 to invite solar developers to propose photovoltaic installations on NYCHA property in exchange for lease payments. In 2018, NYCHA awarded the first solar development sites to two commercial solar developers. Additionally, in 2018, NYCHA released a solicitation and awarded sites for solar development on small buildings (ACCESSolar program). Combined, NYCHA has awarded 12 Mega-Watt (MW) toward meeting the HUD Renew300 commitment of 25 MW by 2025.

New York City Housing Authority

- NYCHA continues to work with DEP to improve water efficiency, including participation in DEP’s Toilet Replacement Program (TRP).
- The NextGeneration NYCHA Comprehensive Waste Management Plan will be released in April 2019.
- NYCHA continues to work with DEP to install green infrastructure for storm water management at NYCHA developments. Installations at 4 developments are complete, and construction is expected to begin in 30 developments in 2019-2020.
- NYCHA and DEP completed the first year of work on a NYSERDA-funded Cleaner Greener Communities grant project at South Jamaica Houses I and II. The NYCHA project is the first pilot under DEP’s Cloudburst climate adaptation program targeting management of storm water from high-intensity rains. NYCHA led community-based planning for the siting of the green infrastructure, a sunken basketball court that doubles as rainwater detention and a water garden. The grant project also includes water conservation, food waste management, water end use study.

Recovery and Resilience:

By the end of 2018, construction on nearly all major recovery and resilience projects was progressing.

Project status shown below:

Major Sandy Recovery Projects Substantially Completed (1)

Lower East Side Rehab V
Wald

Major Sandy Recovery Projects Started (26)

Oceanside	Bayside
Coney Island Sites 4 & 5	Astoria
Carleton Manor	Coney Island Site 1B
Campos Plaza II	Gravesend
Carey Gardens	O’Dwyer (Coney Island Sites)
Lavanburg	Surfside (Coney Island Sites)
Coney Island Site 8 (Coney Island Sites)	Baruch
Rangel	Smith
Coney Island	Two Bridges
Gowanus	East River
Redfern	Wald
Red Hook East	Red Hook West
Haber	La Guardia

Federal Capital

In compliance with HUD’s mandated deadlines, NYCHA places priority on achieving its Capital Plan obligation and expenditure targets ahead of schedule.

To date, the Grants under the Capital Funds Program have been obligated and expended as follows:

HUD Obligations

New York City Housing Authority

- 2016 Capital Fund Grant - CPD obligated \$212 million, or 99.9% of the total funds. 90% of the funds were obligated in February 2018, 3 months ahead of the deadline.
- 2017 Capital Fund Grant - to date, CPD has obligated \$221 million, or 92%, within 15 months of receipt of funds, 9 months ahead of schedule.
- 2018 Capital Fund Grant – to date, CPD obligated \$38 million, or 8.7% of the \$434 million budget.

HUD Expenditures

- 2015 Capital Fund Grant – CPD has expended \$168 million, or 100%, in 33 months, 15 months ahead of deadline.
- 2016 Capital Fund Grant – CPD has expended \$201 million, or 94.7%, in 34 months, well ahead of the April 2020 deadline; the funds are expected to be fully expended by February 2019, 14 months ahead of the deadline.
- 2017 Capital Fund Grant – CPD has a budget of \$240 million, which has an expenditure deadline of August 16, 2021; the projection is to expend the funds by June 2020, 13 months ahead of schedule.

Information Technology

NYCHA's Information Technology (IT) Department continues to make significant service improvements for both our internal and external customers through the implementation of advanced technologies including mobile and self-service technologies. NYCHA continues to be recognized as a technology leader. In 2018, NYCHA was selected to win a Government Experience Award – City Government-to-Citizen Experience. The prize was awarded for NYCHA's MyNYCHA Portal and Mobile App. More highlights of NYCHA's 2018 accomplishments are listed below, under the strategic technology initiatives they support.

NextGen Office – Providing Staff with Better Technology Tools

NextGen Office, an umbrella program under which NYCHA is upgrading, replacing and enhancing its technology infrastructure, especially at the Development Management offices, continued into its third year, completing the rollout of 5,500 desktop computers with new Windows 10 and Microsoft Office 365 at NYCHA's central offices. Borough and Development Management offices were completed in 2017.

Self-Service

In 2018, **MyNYCHA**, which was first deployed in 2015, reached a milestone, with over one million work tickets having been submitted via the MyNYCHA app since 2015. On average over 30% of work tickets per month are submitted via the app.

NYCHA's Owner Extranet is the online platform for Section 8 Owners to transact with NYCHA, and to some extent, with residents. On the site, over 22,000 NYCHA owners can submit lease renewals and repair certifications, apply for direct deposit, access tax documents and other functions. In 2018, NYCHA launched a new version of the Owner Extranet that provides an enhanced user experience to our Section 8 landlords and additional functionalities such as filing of contract changes requests online.

NYCHA's Self-Service Portal continued its growth, with new online services added to provide our applicants, residents, and Section 8 voucher holders with better access to services and information.

- **REES (Resident Economic Empowerment and Sustainability):** Self-service features were implemented in 2018 to improve participation in the Family Self Sufficiency (FSS) program:
 - External providers have the ability to logon to the portal to retrieve and update the various outcomes for referrals.
 - Employers have the ability to logon to the portal to submit the job orders, EVF (Employment Verification form) and retrieve the qualified candidates for the jobs.
- **Online Annual Reviews:** In addition to annual online recertification which was implemented in 2016-2017, additional enhancements now allow residents to go online to submit their interim requests for family composition changes, income, and disability. Additionally, residents can now view their request status online to submit any documents required by NYCHA.

NYCHA self-service options are also available via its **Interactive Voice Response (IVR)**. This platform allows residents to use their phones and IVR to call in service requests in English and Spanish. The following additional functionality was implemented in 2018:

- Security Deposit Refund for residents.
- Payroll deductions and enrollment for residents.

These IVR self-service enhancements increase efficiency by reducing call volume to the CCC call agents and improve customer experience.

Customer Relationship Management (CRM)

In 2018, NYCHA's **Siebel CRM** enhancements include:

- **Health and Safety – Heat.** Provides information on the Heat outage and restoration through robocalls to residents. In addition, robocalls provide tenants an ability to be connected to Customer Contact Center staff if the heat/hot water outage is not restored.
- **Health and Safety – Bed Bugs.** Enhancement to send the bedbug information along with the apartment selection letter to potential residents during with the tenant selection process.
- **Health and Safety – Smoke Free.** Implemented the landmark HUD Smoke-free Policy which will provide smoke-free protections for families residing in public housing developments. As part of this process, the Smoke-free letters were sent out and the process to handle the Smoke free violations reported against the Resident has been deployed.
- **Lead:** As part of the Consent Decree with the Southern District of NY, NYCHA created a web-based portal where tenants can view lead test results of their building and apartment.

In addition to the improvements listed above, NYCHA Attorneys can now use tablets to retrieve resident litigation information and upload stipulations and other supporting documents online using mobile devices to the relevant folders.

Maintenance Operations

Maximo, in 2018 NYCHA's maintenance and asset management system was enhanced and new functionality added, including the following Health and Safety enhancements:

- **Health and Safety – Lead**
 - Deployed dashboard to view daily progress of Vendor assessment and remediation.

- Deployed functionality to support visual assessments for Lead, including generating Vendor and QA Work Orders.
- Deployed functionality to enhance lead safety for Renovation, Repair, and Painting (RRP) by enforcing use of staff with the appropriate certification (based on specific failure class and problem code).
- **Health and Safety – Mold**
 - Implemented Mold Pilot 2.0 - redesigned mold solution to generate inspection-based follow up work in compliance with court mandates. The major changes to the mold inspection include:
 - Remediation methods available for selection are restricted based on questions answered during the inspection, to ensure selection of the most efficient remediation and avoid errors.
 - Work orders automatically generated based upon remediation method selected, to ensure work gets sequenced.
 - Simplified list of possible causes of mold, and the next steps to fix the mold represented by work orders.
 - Work orders auto-generated to remediate mold issues and any deficiencies related to mold, based on the questions answered.
 - Follow-up verification work order to check that everything was fixed; a verification failure triggers a process to fix the remaining issues.
- **Health and Safety – Heat**
 - Major incidents/Outage redesign: emergency deployment of new process for planned and unplanned work for City Hall reporting.
 - Deployed new heating outage process, which captures apartment verifications, covers three distinct apartments, includes probable and actual cause.
 - Heating Inspections - Functionality to support daily heating inspections and fuel deliveries (for hydrothermal, conventional and combination boiler room inspections and fuel delivery tracking in Maximo) went live pending business go-ahead.
- Additional improvements included:
 - Inspections - Live with Roof Fan Inspections mobile application enhancements.
 - Inspections - Live with Exterminator Inspections mobile application enhancements.
 - Tenant Not Home – now able to track calls to residents for maintenance work orders to validate the tenant not home status.

Transparency, Reporting, and Compliance

Events in 2018 also increased the call for more transparency, spurring NYCHA IT to implement the following:

- Enhancements to **NYCHA’s Outages** website to now provide more data related to Heat, Hot Water, Gas, and Elevators service interruptions. This data is available to the public on NYCHA’s external website (www.nycha.nyc.gov).
- **Heating Dashboard** – Implemented single dashboard that merges data from various sources and systems (Maximo, CHAS, EFS, UMIS) into one. Key items displayed in the dashboard are:

- Heating overview that shows Maximo outages and work orders along with CHAS boiler modes, zone valve modes, alerts and apartment temperature alerts.
- Outages by its impact on tenants.
- Work orders by its impact on tenants.
- Trend and impact by the kind of repairs done and time to repair both for outages and work orders.
- **Predictive Analytics** – Implement predictive analytics to:
 - Predict number of work orders by heating cluster for the following seven days based on historical data.
 - Predict labor requirement for the following seven days based on historical data.

Finance and Procurement

In 2018, process efficiencies were implemented around **Oracle Financials**. NYCHA implemented an **electronic invoicing** process for material vendors. Accounts Payable department will receive invoices electronically into Oracle instead of paper envelopes and paper invoices. Along with helping NYCHA go-green, this will reduce manual entry of invoices and cut down invoice processing times so NYCHA can take advantage of supplier discounts. Currently, 36 suppliers have been enrolled in this program and additional suppliers are being on-boarded.

Also completed in 2018 were a **Contracts Tracking Database**, replacement of Bottom-line check printing software with **Evergreen Systems**, which provides better integration with Oracle eBusiness; and a warranty database conversion from legacy Informix platform to Oracle APEX.

Infrastructure and Information Security

NYCHA continued to improve its **CCTV Network** in 2018 by implementing integration/federation of the NYCHA CCTV systems with that of the New York City Police Department NYPD for 25+ developments. In addition, 15 developments were added to the CCTV network, for a total of 170 total developments on 140 Security Operations Centers (SOCs).

Accomplishments under **NYCHA’s Information Security Program in 2018** include:

- Completed a NYCHA-wide IT Security Training program.
- Table-top exercises for Incident Response started in 2018 and will continue in 2019.
- Completed Cloud Access Security Broker (CASB) proof of concept.
- Implemented application for External Behavior Based monitoring application.
- Implemented the Console for the AppGuard application.
- The Altiris application was implemented and NYCAH began Altiris monthly patching of endpoint desktop devices.
- Installed the Tripwire server and application.
- SIEM (QRadar) upgrade analysis completed.

NYCHA’s Cloud-First Strategy - Since 2014, NYCHA has espoused a “**Cloud-First**” Strategy that has resulted in several key components of its IT application and hardware infrastructure moving to cloud-based providers. In 2018, NYCHA completed Phases 1 and 2 of three-phase initiative to replace its legacy legal case management system with **LegalStratus**, a modern, cloud-based system. In addition, NYCHA also upgraded its **Q-matic Queue Management System** to a cloud-based version. NYCHA will continue to examine the viability and benefits of migrating

other NYCHA infrastructure and application components to cloud providers on a case-by-case basis.

2019 Capital Plan Highlights

Capital Projects Division

Federal Plan

The Capital Projects Division will receive \$1.15 billion in new Federal Funding over the period from 2019 to 2023 for investment in NYCHA's building portfolio. The projections over the upcoming years are summarized below.

Brick and Roof Projects

For the FY 2019-2023 Capital Plan, \$158 million, or approximately 14% of the allocation of the Federal Plan, is targeted at building exteriors, including brick and roof projects. This work will ensure that building exteriors are watertight by replacing aging, deficient roofs and repairing brick façades. A significant portion of this funding will support major exterior roof work at Sotomayor, Patterson, and Throggs Neck developments. These sites have been prioritized based upon the Physical Needs Assessment (PNA) level of deficiencies and roof ratings, as well as an analysis of the volume of work order tickets.

Heating & Plumbing

Over \$294 million, or about 26% of the Federal Plan will be allocated to heating and plumbing projects.

Boiler plant replacements are planned for 15 developments, including: Marcy, Nostrand, Pomonok, and Breukelen. These projects will fully replace heating plants and all ancillary equipment to optimize the total lifecycle investment, and to reduce fuel consumption. The prioritization of these selected sites is based upon the assessment of conditions with regards to boiler equipment age, volume of work tickets and availability of replacement parts.

Elevators

The funding for the elevator portfolio is \$103 million which is 9% of the Federal Plan. Of this amount, \$73 million is slated for elevator replacement at 11 sites, including Dyckman, McKinley, Morrisania Air Rights, and Albany. Sites are prioritized based on conditions assessments.

This work is essential to the health, safety and welfare of residents and staff. One of the largest projects in the elevator portfolio is a comprehensive replacement of the 98 cars at Queensbridge North and South developments. The architectural and engineering aspects are being funded federally and the physical work by New York State allocation. The investment of \$103 million also includes over \$31 million for elevator communication devices to be installed at over 68 sites across NYCHA. These devices, which are required for elevator code compliance, will allow communication to a central command center for emergencies and outages.

Multi-Trade Projects

The Dyckman development is also to have a significant investment of funds with \$12 million in 2019, and an additional \$13 million in years 2020 – 2021. This funding is expected to cover building envelop and major interior components.

Major renovation at Breukelen is being facilitated through \$104.48 million in Federal funding. The scope of this project is to restore the buildings' envelopes including roofing and masonry.

The multi-trade strategy being utilized by CPD will bring these development buildings to a state of good repair.

Apartment Bathrooms

The Federal Plan allocates approximately 16% of funding, \$188 million, to the renovation of bathrooms at Jefferson, Pomonok, Mitchel, and Pink developments. Each of these developments has a high number of work order tickets. Having completed building envelope work at these sites, allows NYCHA to invest wisely in the interior of the buildings.

City Plan

The City's capital projects portfolio being managed by CPD through 2023 is approximately \$2.7 billion. The funding is allocated for roof replacement, façade repairs, boiler replacement and related repairs, security enhancements, grounds improvement, and energy conservation measures.

In 2018, a commitment was made to NYCHA to provide \$200 million under the Mayoral Heating Initiative program for the installation of boilers, domestic hot water systems, and temperature controls. In that same year, NYCHA allocated \$156 million of the funds for boiler replacement for eleven developments. Design for those developments were completed in 2018 and are scheduled to be awarded in 2019. Additionally, \$43.1 million, available in FY 2020, will be allocated to support heating plant upgrades at additional developments. These upgrades will include separation of domestic hot water from the heating system and installation of heat monitoring systems

Also, at Pelham Parkway, a separate allocation of \$29 million in Mayoral funding plus \$11.5 million in Federal funding is being combined to replace 6 boilers and install new semi-instantaneous hot water tanks. The project is now in the procurement phase.

As part of the Mayor's Rat Mitigation Initiative NYCHA received over \$25 million in funds to replace or install exterior and interior compactors, excavate and clean basement crawl spaces and purchase bulk crushers. These measures will assist in reducing resident exposure to rodents, which studies have shown can trigger asthma attacks and spread communicable diseases.

Brick & Roof

The brick and roofing program is funded under the Mayor's \$1.3 billion roofing initiative. In 2019, the allocation is for \$357 million (30% of the 2019 budget). CPD has expedited the roofing replacement initiative through a more aggressive schedule from thirteen tranches down to eight. The objective is to shorten the delivery time for these replacements. Over the next 5 years, there will be an allocation of approximately \$197 million for each of the years to replace the roofs at the designated developments.

The schedule for 2019 is to continue to complete the remaining roofs in Tranche 2, with an expected completion date of December 2019 for six developments, with the remaining one development projected to be completed by October 2020. Tranche 3 is in progress: construction has started at seven of nine developments. The two remaining developments from Tranche 3 will begin construction by June 2019; and at least one will be completed by December 2019.

Security Enhancement

The City Plan has allocated approximately \$48 million (4%) of the 2019 funding to security enhancements, which include installation of CCTV/LAC and lighting across the City. Of these funds, over \$7 million funded by the Borough Presidents and City Council Members are planned for lighting. The current MAP CCTV/LAC projects at five developments are expected to be completed by December 2019. MAP CCTV and lighting work on Red Hook East and Red Hook West is expected to begin in the first quarter of 2021, after the completion of major work currently being done under the Recovery and Resilience program.

Quality of Life

In 2019, approximately \$80 million (7%) is being allocated to enhance the quality of life for NYCHA residents by improving the community facilities, and recreational centers and repair or replacement of playgrounds.

At Patterson, \$1 million in City funding has been allocated for two new bathrooms and a commercial kitchen renovation at the community center. The project is currently in the design stage.

Ongoing senior center projects include Vladeck and the Hudson Guild for a combined allocation of \$4.2 million projected to be completed by March 2020.

Approximately \$14 million has been allocated in 2019 for elevator repair and replacement.

As mentioned previously, the Rat Mitigation initiative has an impact on the quality of life of the residents since it will provide additional funding for garbage disposal systems that will reduce the exposure to the infestation of rodents.

Major Renovation

\$30 million of Mayoral funding will be contributed towards the ongoing repairs to apartments at 8 developments putting them back on the rent roll so that more apartments are available for residents. Repairs in Whitman are expected to begin in 2019.

Heating & Plumbing

Approximately \$200 million is being provided through the Mayor's Heating initiative to address heating issues at 20 developments, impacting approximately 45,000 residents. This initiative includes boiler replacement, domestic hot water system, and heating controls. It is expected that this system of repairs as well as new system replacement will result in approximately \$5 million in energy savings.

Under this Plan, 39 boilers will be installed at 10 developments to alleviate the chronic outages previously experienced by residents. Heat and hot water systems will be modernized at twelve developments (ten developments receiving both boilers and domestic hot water (DHW) decoupling and two developments getting only DHW decoupling) where the hot water system will be separated from the boiler system. In addition, there are 7 developments that will be receiving only the heating controls component. The separation of DHW from the heating systems will permit the heating system to be turned off in summer months, enabling better preventive maintenance of the boilers as well as reducing wear on the boilers, thereby extending their useful life.

Gas riser replacements and underground fire and water line projects in excess of \$67 million are at various stages of the construction cycle. Developments impacted include Patterson, Castle Hill, Grant, Washington, Mitchel, and Van Dyke.

Ventilation Modernization

In 2017, the City committed \$20 million to modernize ventilation systems in 19 developments located in East Harlem as part of the East Harlem Rezoning portfolio. Proposals are expected by early March 2019. An engineering firm is being engaged for the design and preparation of construction documents, following which NYCHA will issue a Request for Proposals for the actual work. It is anticipated that the work will commence in the first quarter of 2020. These allocated funds will be spent between 2019 and 2021.

Kitchens and Bathrooms

Approximately \$50 million in Mayoral funding has been identified for kitchens and bathrooms renovation at Breukelen. The scope of the work is under development which is expected to provide renovation in 31 buildings.

At Patterson, \$1 million in City funding has been allocated for two new bathrooms and a commercial kitchen renovation at the community center. The project is currently in the design stage.

Energy Programs

Energy Performance Contracts (EPC):

NYCHA set a goal of securing \$300 million in EPC funding by 2025. NYCHA is on track to exceed this goal by 2021. As of January 2019, NYCHA has received HUD approval of \$271.8 million for four EPCs serving 72 developments. In total, NYCHA expects to have four EPCs in construction in 2019 and one EPC is in the sixth year of its thirteen-year compliance period. In Spring 2019, NYCHA plans to issue a solicitation to Energy Service Companies (ESCOs) to provide investment grade audits for additional EPCs leveraging the Mayor's \$200 million investment in NYCHA heating systems.

Weatherization Assistance Program (WAP):

In 2016 NYCHA set a goal of securing \$30 million in WAP by 2025. To date, NYCHA WAP contracts total \$9.7 million. WAP is a program of the US Department of Energy, administered by NYS Homes and Community Renewal. WAP provides grants of up to 80% of the cost of repairs and capital improvements that improve the energy efficiency of housing serving low-income residents. For the April 2019 – March 2020 program year, 230 apartments in two developments are currently undergoing energy audits.

80x50 and Pilot Programs:

NYCHA is engaged in testing new technology to inform future capital investments toward meeting the City's goal of reducing Greenhouse Gases by 80% by 2050. In 2018, NYCHA prepared its participation in RetrofitNY, a deep-energy retrofit competition of the New York State Energy Research and Development Authority (NYSERDA). A NYCHA RetrofitNY RFP will be issued in 2019. NYCHA also developed a pilot program to provide energy-efficient, smart AC units at one development, and, through a partnership with the Mayor's Office of Sustainability and with funding from NYSERDA, NYCHA is designing a test installation of air-source heat pumps to provide both heating and cooling in another. Both projects will be procured in early 2019.

Finally, five building technology firms selected through a NYCHA/MOTI Call for Innovations and a Fund for Public Housing Tech Pilot competition pursued pilot installations of smart building technology in 2018 in various NYCHA buildings. Findings are expected in 2019.

Recovery & Resilience

In December 2015, NYCHA gained access to \$3 billion, the largest grant in Federal Emergency Management Agency (FEMA) history. Since then, NYCHA has been moving full steam ahead to get shovels in the ground on 33 critical Recovery and Resilience projects. To date, one project on the Lower East Side has been completed, another 29 major projects are in construction, and major construction is anticipated to begin at nearly every development by mid-2019. As of the end of December 2018, NYCHA has awarded over \$2.3 billion in contracts related to Sandy Recovery and spent over \$1.19 billion. Every day, NYCHA is making tremendous strides to ensure its developments are protected in the face of climate change and that projects are progressing as quickly as possible. As of the end of 2018, NYCHA has started construction on 196 buildings.

- **Status of Construction**

- 1 development complete.
- 29 major projects in progress (196 buildings benefiting).
- In 2019, NYCHA anticipates completing construction on 12 major resiliency contracts.
- All construction anticipated to be complete in 2022.

- **Construction Milestones**

- 45 roofs replaced
- 542 new exterior lights installed
- 860 new security cameras installed
- 82 new entrance doors installed
- 7 new ADA accessible ramps as part of resiliency measure at Wald Houses.
- 10 new buildings constructed to elevate critical mechanical, electrical, and plumbing equipment above future flood levels, another 36 new buildings in progress

- **Status of Funds**

- \$3.26 billion total funding from HUD and FEMA
- \$2.33 billion in contracts awarded
- \$1.19 billion spent to date
- Major Construction (\$942 million)
- Immediate Storm Response
- Preliminary Construction
- Design
- Construction Management
- Program Management

Status of Jobs

- 701 went to low- income or public housing residents.

- 132 Individuals trained through Sandy Pre-Apprenticeship Program
- Of those 62 individuals were placed in a union.

Information Technology

In 2019-2022, the Authority will continue to leverage its investments in advanced technologies in support of the NYCHA's business vision and regulatory and compliance obligations. The following are the major initiatives that the Authority will undertake in 2019-2022 in information technology that improves service to our customers and stakeholders, and supports NYCHA's mission of providing safe, clean, and affordable housing and facilitating access to social and community services.

NextGen Office – Providing Staff with Better Technology Tools

Smart Screens – In 2019, IT will install 55-inch interactive Smart Screens at each of the Authority's developments (140+). The devices are designed to support training, communication and collaboration for staff at the developments, thereby enabling them to have the skills and knowledge to better serve their customers.

Expand Bandwidth and Improve Circuits at Management Offices - Several NYCHA field sites still use DSL or T1 and perform poorly when interacting with NYCHA systems like Microsoft Exchange and Maximo. This project will track action plans to ameliorate performance at those locations by implementing Verizon Ethernet Service (E-LAN) – for improved communications links and faster performance. The increased bandwidth will support video conferencing and online learning. Rollout will progress through 2019.

VoIP Phones for Borough Management and Field Offices - Beginning in 2019, NYCHA will upgrade the development offices to VoIP telephony. Field office users will have direct lines for desk phones, voicemail routed to their Outlook inbox, and call forwarding, among other features.

Expansion of Self Services Kiosks – Fourteen (14) additional kiosks have been deployed to NYCHA's walk-in-centers in Bronx and Brooklyn. Self Service

MyNYCHA App - The MyNYCHA app, which was first deployed in 2015, saw new enhancements in 2017 to support public space requests and email notifications. Planned 2019 enhancements include:

- Login credentials same as NYCHA Self Service Portal
- View latest Rent Bill
- Report an issue with a recently closed ticket
- Create tickets for complaints

Digital Van - NYCHA's digital vans help bridge the digital divide by allowing residents to take advantage of digital resources such as researching job opportunities, taking online classes, and complete Annual Reviews online. In 2019, NYCHA will add a 4th Digital Van.

Section 8 Owner App and Web Enhancements - NYCHA will leverage its successful MyNYCHA app platform to deploy Apple and Android apps for Leased Housing Owners to manage inspections.

Customer Relationship Management

Outbound Callback and Workforce Management - NYCHA's Customer Contact Center (CCC) is the main point of contact for NYCHA residents, Section 8 (Leased Housing) voucher holders, and applicants for public housing. NYCHA's CCC handles approximately 10,000 calls per day with some peak days averaging at 16,447 calls. This 2018 initiative seeks to optimize CCC processes, enhancing the current Cisco and Calabrio system with Outbound Callback and Workforce Management functions respectively.

Tenant Data Management and Rent Collection System - Development for the replacement of NYCHA's legacy tenant management and rent collection systems is in progress and will continue through to the end of 2019. This program will replace antiquated NYCHA Project Information Management Systems (PIMS) with new technology that will enable online self-service as well as improved reporting.

Electronic Resident Files - Digitize existing resident paper folders and files; establish a system to continue storing all future resident files electronically and reduce manual labor associated with hardcopy files.

Siebel CRM will implement a system-driven smart flow for the triage questions asked when a resident submits a heat or hot water complaint via the Customer Contact Center or the MyNYCHA app. Based on the responses provided by the resident, the system will filter the complaint to create and assign the work order(s).

Maintenance Operations Management

2019 Goals for NYCHA's Maximo Asset Management System and associated mobile applications include the following:

- Health and Safety - Lead
- Integrate XRF readings into Maximo.
- EBLL (elevated blood lead levels) tracking and management via the Maximo system.
- Rollout Mold Pilot 2.0
- Health and Safety – Mold
- Mold 2.1 - Enhancements to new format covering mold inspections for public spaces; format of inspection for leak issues.

Health and Safety - Heat

Improve tracking and management of third-party vendors servicing NYCHA boilers - Allow third-parties to use Maximo to support Boilers. NYCHA will engage multiple vendors. IT will support two integration models- Vendor using NYCHA Maximo and Vendor using proprietary Maximo.

Health and Safety - HeatImplement integration with Jurisdiction Online to tracks potential heating violations so issue can be addressed before becoming a formal violation.

Implement changes to Maximo to track jobs rather than distinct trade work orders to improve customer service and reporting

Implement a new Inventory Management Maximo mobile application, as well as enhancements to the current core Maximo system, to support improved tracking of NCYHA's development storeroom inventory at each of the over 140 development locations.

Data Warehouse Health and Safety - Heat

Implement predictive analytics to:

- Predict number of work orders by heating cluster for the following seven days based on historical data.
- Predict labor requirement for the following seven days based on historical data.

Transparency, Reporting, and Compliance

Beginning in 2018, NYCHA began implementing a cloud-based Compliance Management Software system (SiteCompli). The system, set to be complete in 2019, will improve efficiency and cost effectiveness of managing outstanding and new buildings regulatory compliance violations issued against NYCHA buildings by 9 NYC and 2 NYS building code compliance agencies, addressing backlog of such violations; demonstrate cost-saving use of Open Data public portals to identify and manage such violations in a timely manner.

Finance and Procurement

New finance and procurement related improvements scheduled for 2019 include:

Streamlining Marshall Services procurement via Oracle i-Pro.

Improved integration between Oracle and the Maximo Asset Management system to support the new Development Storeroom Inventory processes and system.

Implementation of functionality to support the Public Housing tenant utility re-imburement process.

Infrastructure and Security

In 2019, NYCHA will continue its Information Security program as follows:

- Continue table-top exercises for Incident Response.
- Implement Cloud Access Security Broker (CASB) / Symantec.
- Completion of three goals in 2019 for External Behavior Based monitoring application:
- Management report on the activities of the consultants working for NYCHA in IT
- Management report on the use of privileged user accounts (admin accounts)
- Management report on unusual daily activities both internal and the internet facing web sites of the NYCHA infrastructure.

Complete the Symantec / NYCHA Security Operations Center (SOC) in Virginia to monitor 24/7 the security / health of the NYCHA IT environment. This includes correlation of events with the global threat landscape.

Complete QA testing of AppGuard endpoint agent in 2019. Deploy the AppGuard agent to all servers (Windows and Unix). Allow patching and an automated inventory of software and hardware.

Tripwire scanning sessions and agents are being deployed to all critical application servers in 2019 to report configuration changes for root cause analysis and for IT security monitoring of critical system changes.

Implementation and tuning of the Security Information and Event Management (SIEM) system is scheduled.

Refresh of Floor Switches - Technology refresh of aging network switches on all floors at 90 Church, 250 Broadway, Long Island City, and Borough Management Offices.

Improve Connectivity for NYCHA's Mechanical Systems - Approximately 60% of NYCHA's buildings have an active fiber network connecting them to their respective management offices. This initiative involves migrating all elevator, energy and CCTV mechanical systems to the existing active fiber to improve connectivity by replacing aging wireless bridges that are prone to malfunction.

Two Way Radio Handsets (Tier 1 and Tier 2) – Complete the upgrade and deployment of 3,500+ two-way radios including mobile two-way radios for Exec, ESD and NYCHA OEM vehicle fleet.

NYCHA's Cloud-First Strategy - Since 2014, NYCHA has espoused a “cloud-first” strategy, migrating services and infrastructure to the cloud whenever feasible, based on financial, technical, security, and business criteria. In 2019, NYCHA plans to migrate the following services to cloud-based platforms:

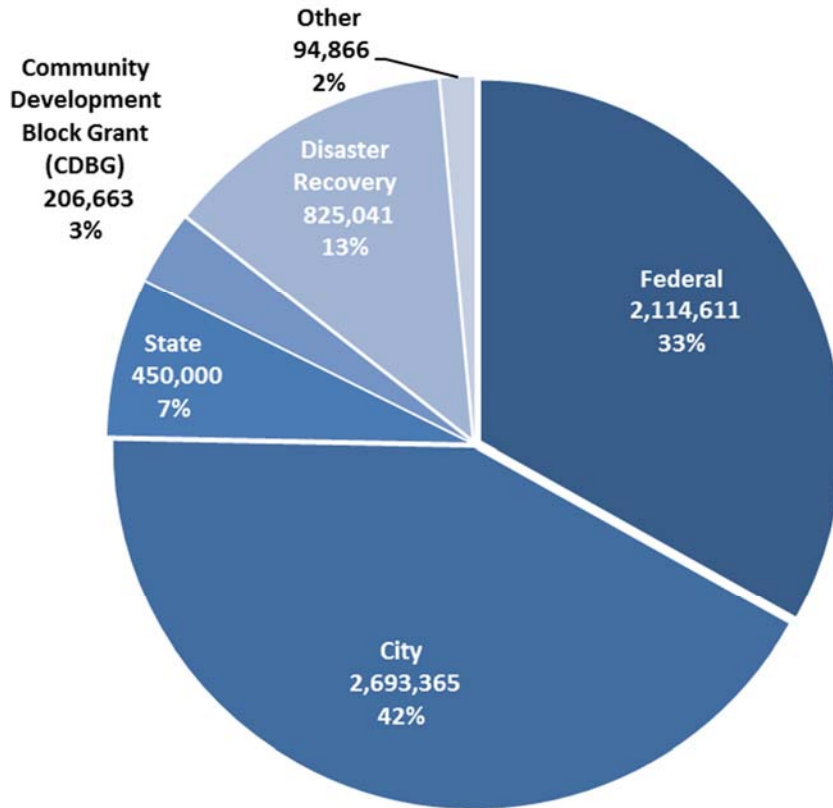
Kronos Time and Attendance Software

Primavera Replacement – Began in 2018, and to be completed in 2019, this initiative replaces the project management software used by the Capital Projects Department, migrating functionality to eBuilder, a cloud-based solution.

NYCHA will also continue to examine the viability and benefits of migrating other NYCHA infrastructure and application components to cloud providers on a case-by-case basis.

Capital Funding Summary

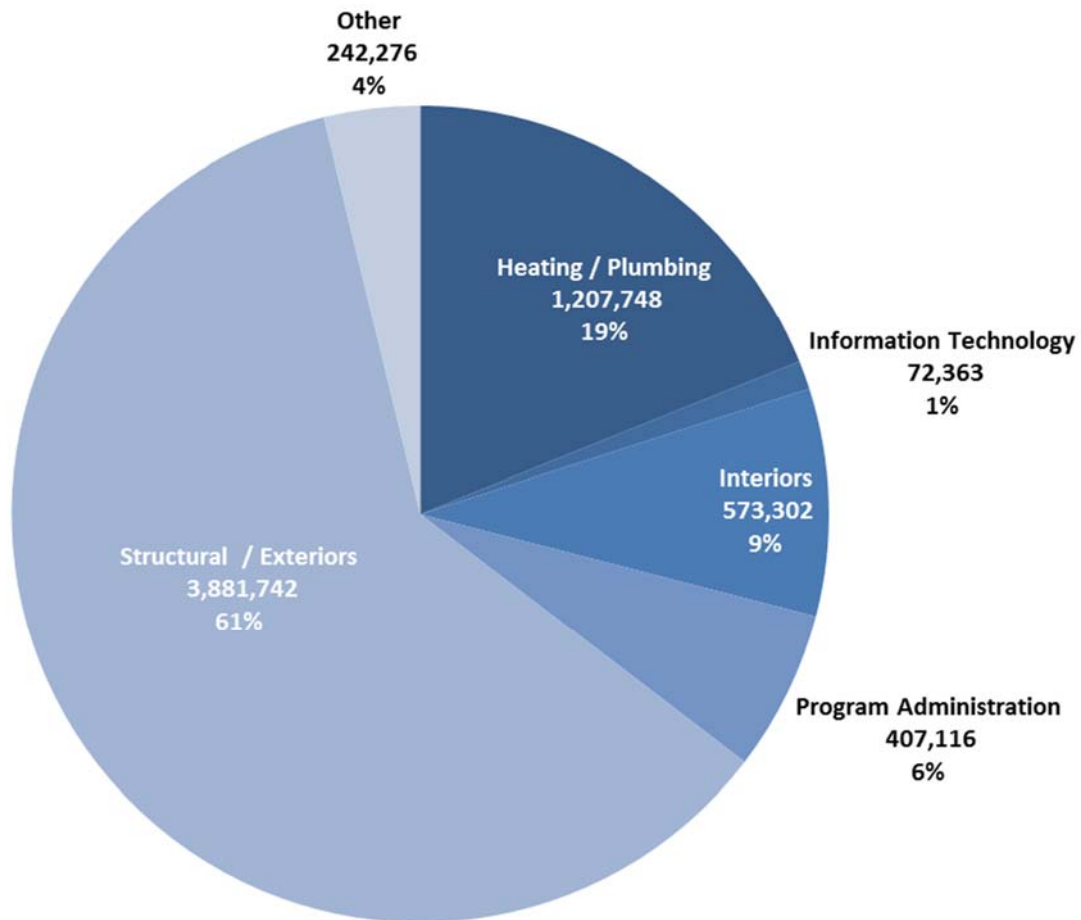
FY 2019 – 2023 Capital Funding by Funding Source
(In Thousands)



Total: \$6.384 Billion

- Other includes DANY, Public Housing Development Grant and State.

FY 2019 – 2023 Capital Plan by Work Type
(In Thousands)



Total: \$6.384 Billion

- Other includes Fire Safety, Garbage Disposal, Energy projects and A & E/CM Fees.