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Dear New Yorkers:

This Thirteenth Monitor Report focuses on: (i) NYCHA's efforts to implement a new organizational structure, as required by the HUD Agreement; (ii) an update on NYCHA's performance during the first half of the current heating season, as well as an assessment of NYCHA's summer preventive maintenance program; and (iii) improvements in NYCHA's waste management practices.



*Bart M. Schwartz,  
Federal Monitor*

## I. Borough Monitoring

As we discussed in prior quarterly reports, paragraph 46 of the HUD Agreement directed NYCHA to work with the Monitor to develop a new Organizational Plan for the Authority. The "Organizational Plan" includes a Transformation Plan and two Implementation Plans. The Transformation Plan, issued on March 8, 2021, outlines a vision for the agency's future and introduced several specific reforms required to realize that vision. The Transformation Plan presents a set of initiatives unconstrained by resources, as if NYCHA were fully funded. News of budget cuts in the last several months will have an impact on NYCHA's ability to fully realize all initiatives.

The Implementation Plans describe the specific organizational changes and process improvements NYCHA has begun to implement and those they plan to implement considering available resources and other constraints, to achieve the organizational change required by the HUD Agreement. These changes are designed to improve NYCHA's responsiveness to residents and to define how NYCHA will operate into the future. The Phase 1 Implementation Plan was agreed upon by HUD and SDNY in February 2021 and NYCHA has begun to implement initial improvements. The Phase 2 Implementation Plan will be finalized this quarter.

At the core of NYCHA's transformation is NYCHA's new operating model, which NYCHA has named the Neighborhood Model. The Neighborhood Operating Model endeavors to restructure operations to better support the developments, where NYCHA delivers most of its services. NYCHA has begun to design the specifics of its new operating model with a focus on enhancing local management at developments by moving decision-making and control from the central office to local Property Managers. NYCHA has restructured the property management staff into 30

Neighborhoods and has implemented other changes identified in the plans to support the Neighborhood Operating Model and to further improve operations.

To assess the design and implementation of NYCHA's new operating model, as well as the effectiveness of other improvements intended to improve operations, the Monitor formed a Borough Monitoring Team. The Monitor's Borough Monitoring Team has been observing, assessing and reporting since 2021 on the progress of NYCHA initiatives intended to drive organizational changes and providing feedback to NYCHA, HUD, and SDNY.

A major benefit of this approach is that the Borough Monitoring Team can identify and report on the extent to which NYCHA's organizational changes are being implemented and progressing to improve operational performance. Since many of NYCHA's implemented initiatives broadly require the participation of multiple NYCHA departments rather than a single department aligned to a "pillar", the Borough Monitoring Team focuses on NYCHA's ability to operate cohesively across multiple departments to achieve its goals. The Borough Monitoring Team documents observations, from the perspectives of front-line staff, so that successful strategies can be shared, deficiencies can be identified to NYCHA leadership, and additional support can be provided as needed. The Borough Monitoring Team allows the Monitor to help identify reporting and operating silos, observe cross-functional operations universally, record different approaches among jurisdictions, and link actual field practices occurring at developments with planned changes implemented at the borough and central offices.

The Borough Monitoring Team has observed that NYCHA is making some progress accomplishing steps towards stated goals identified in its Organizational Plan. There are identifiable improvements that individual departments within NYCHA have made to accomplish wide-scale organizational change to align with the concept of neighborhoods. For example, in Q1 of 2022, NYCHA announced its plan to restructure its heating department not only to improve performance and efficiency within the department, but also better align its operations with the newly created separate neighborhoods. NYCHA issued a new organizational chart with detailed descriptions outlining the duties and responsibilities of the various sections of the new department. Later in 2022, NYCHA announced similar plans for its elevator department including the department's new restructuring to assign its maintenance and repair teams based on the new neighborhoods. Additionally, NYCHA is rolling out its new structure for the existing Pest Control Department so that it will now have greater oversight authority to ensure that pest extermination staff and vendors across NYCHA are properly trained and adhering to industry best practices but are otherwise assigned to work and managed by the boroughs. While the Monitor team and HUD made certain recommendations that have now been integrated as part of the reformation of the heating, elevator and pest control departments, NYCHA must be acknowledged for moving these restructuring plans forward, especially under the circumstances of its current budget constraints. All this being said, significant work remains regarding the

whole of NYCHA to further define and transition the entirety of the organization from its evolving neighborhood concept to a functioning Neighborhood Operating Model.

#### A. The Borough Monitoring Team

The Borough Monitoring Team is comprised of four borough leads, who are supported by field examiners and subject matter experts. The four leads each have an assigned coverage area – Manhattan, the Bronx, Queens/Staten Island, and Brooklyn. Team members regularly interact with NYCHA staff in their assigned coverage area at the borough, neighborhood, and development levels. A main source of the team's information comes from conversations with property management staff, from Supervisors of Caretakers to Borough VPs and the various staff titles in between. The field examiners also conduct periodic inspections, document observations in Monitor field reports, and review work orders (WOs) and other documentation. Over the last year and a half, the Borough Monitoring Team leads have conducted an extensive number of interviews, supplemented by several hundred conducted by the Monitor's field examiner team. Ultimately, the goal of the team is to evaluate the implementation of NYCHA's new operating model and determine whether the operational changes are adequately supported and are achieving Organizational Plan commitments, HUD Agreement requirements, and broader NYCHA goals.

Each calendar quarter the team agrees upon a subject(s) that will be the focus of the Borough Monitor Teams site visits and analyses. A guidance document consisting of interview questions of areas of focus is developed and circulated to each of the team members to ensure consistency in information gathering. The Borough Monitor Team leads meet weekly among themselves and bi-weekly with the entire field examiner team. At each meeting, the participants discuss common themes occurring on a borough-by-borough basis and report on their observations. Systemic issues that have broad-ranging impact are brought immediately to NYCHA to address. The team identifies successes and deficiencies and documents its findings in quarterly reports issued to NYCHA, HUD, and SDNY.

The Borough Monitoring Team began its work in late August 2021. In each subsequent quarter, the team has focused its examination on a few key business units and initiatives that NYCHA identified in the Transformation Plan and Implementation Plan: Part 1 as important steps towards improving its organization. Since its inception, the team has looked at NYCHA's Waste Management Department, organizational changes to support further development of the Neighborhood Model, NYCHA's property-based budgeting finance initiative to enable property management staff to begin to manage portions of their budget, work order reform, and procurement, among other things. The team assesses NYCHA's progress in each area and examines the coordination between central office departments and those at the Borough, Neighborhood, and Development levels.

## B. Observations

NYCHA's effort to design the Neighborhood Model has been ongoing since the publication of the Transformation Plan in 2020. The Borough Monitoring Team has identified some common themes and areas that, largely based on the team's interviews with property management staff, need additional focus. Some of the areas are discussed below. The borough reports are not designed to be exhaustive and definitive renditions of deficiencies observed but rather serve to point out challenges NYCHA faces in transitioning to a new operating model. Given NYCHA's extensive size and the complexities of its operations, it will take time to both fully develop the framework for the new operating model, and then complete its implementation and ultimately fully integrate the "neighborhood" concept into day-to-day operations across all of NYCHA. This is clearly an evolving process. The Borough Monitor Team's approach is to highlight both the progress and the gaps we see in this restructuring rollout from the perspective of the boroughs, neighborhood and developments, and then work with NYCHA to establish structures to achieve the plan's goals of improving operational efficiency and effectiveness and compliance with the HUD Agreement.

A cornerstone of NYCHA's organizational transformation touting the new operating model is decentralization of much of its operations. Titling it the "Neighborhood Model" suggests NYCHA's intention to reform its centralized top-down structure by shifting greater authority and accountability to staff at the local level. As the first steps of organizational transformation began in 2021, with the establishment of 30 distinct geographic neighborhoods across NYCHA, the Borough Monitoring Team started conducting interviews of NYCHA's newly appointed Neighborhood Administrators and other borough management staff to understand their perception and understanding of how NYCHA's decentralization was being implemented at the development level.

Early observations were that it was unclear whether development staff had the authority to make crucial decisions at the borough, neighborhood, or development level. Neighborhood Administrators were unclear on their expected roles and responsibilities. To a large degree, this confusion stemmed from the lack of planning to clearly define roles and responsibilities, decision-making authority, and key performance indicators both down the property management vertical, and horizontally across central office functions prior to roll-out. After publishing the Transformation Plan, NYCHA did engage with staff in working groups to better conceptualize the Neighborhood Model. Since 2020, NYCHA's Office of Strategy and Innovation ("S&I") solicited staff ideas and general concepts to design and better define the new operating model. While S&I improved communication with employees by disseminating information about the Transformation Plan, we continued to observe and hear from development staff that it wasn't fully clear ultimately what the "neighborhoods" were supposed to be at the conclusion of NYCHA's transformation, or how they would operate. Despite repeated efforts through 2022, NYCHA's design of the new operating model still requires more details to better define and provide clearer direction to staff of how decision-making authority is being moved to the

boroughs, neighborhoods, and development staff except for isolated decisions in connection with siloed initiatives. Each of the four quarterly reports issued by the Borough Monitoring Team to date have provided NYCHA with examples of some of the areas within property management where gaps exist. For example, developments may now independently create schedules to address unique needs for caretaker staff. This much needed change replaced the Alternative Work Schedule and correctly vests the decision with local management to create schedules as opposed to a city-wide formula. On the other hand, as it relates to capital projects, except at limited points during the year, development management has little meaningful input on capital projects and cannot adjust priorities to address shifting needs during the year.

Because NYCHA had not provided a sufficiently detailed plan of how the neighborhoods should operate under its transformed structure, some Neighborhood Administrators started employing different tools and policies, those best known to them. As a result, inconsistencies were regularly observed, and to date, many of the inconsistencies observed in 2020 remain. What has become apparent is a “get it done attitude” presented by many development staff and mid-level management. Despite a lack of clarity from the central office, emerging leaders within the organization have taken it upon themselves to independently define what the “neighborhood” means. Some examples include developing oversight reports, regular meeting cadences and performance goals.

Difficulties allocating responsibilities and coordination between central office departments and developments is another operating model design challenge. The Borough Monitoring Team has noted in one example, that central office initiatives that originate in specialized and centrally managed units are not always well-coordinated or integrated into daily NYCHA operations. The Office of Operational Analysis and Contract Management (“OACM”) provides support to developments by focusing on specialized initiatives and oversees the Department of Rapid Response, the NYCHA operations group responsible for the Team for Enhanced Management, Planning, and Outreach (“TEMPO”) repair teams.<sup>1[1]</sup> The Department of Technical Services (“TSD”), also overseen by OACM, does targeted repairs and maintenance work. In August 2022, staff reported that TEMPO repair teams and TSD often will show up at developments unannounced. This directly impacts property management’s ability to communicate with residents in advance of work occurring and to schedule other work at the same time. Providing advance notice to residents about scheduled work enhances local staff’s relationship with residents, reinforces the concept of a neighborhood, and reinforces local accountability at developments. Staff also reported that central office initiatives do not adequately anticipate and order materials for delivery to developments, (including confirming delivery and availability on site), prior to commencing work. This has historically impacted the supply of materials regularly stocked at developments - causing gaps in availability of certain supplies and

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<sup>1</sup> TEMPO repair teams (which are distinct from the TEMPO abatement teams) are responsible to maintain and temporarily repair apartments identified as high-risk locations with children under six years of age.

materials. Since the Borough Monitoring Team received the reports of these challenges last summer, there have been painstaking and extensive efforts undertaken by NYCHA to improve local coordination and materials availability including better procedures and systems to prepare and notify residents and development staff of upcoming work. However, materials forecasting, and coordination can still be improved.

In another example, responsibility to forecast material needs or to conduct onsite inspections to confirm that vendor work is completed timely and to specification must occur at the development level. Yet, the Borough Monitoring Team has observed inconsistencies whereby certain Operations staff either contribute greatly or are entirely ambivalent about their responsibility to contribute to the procurement process. There may be an expectation that the Supply Management and Procurement Department alone can forecast material and service needs. That is just not the case. Procurement is one of the more complex and cross-functional processes within the Authority and staff responsibilities contributing to that process must be defined and integrated into the design of the Neighborhood Operating Model.

NYCHA's new initiatives in the Transformation and Implementation Plans will need increased staff to be successful. The new operating model is a *transformation* in and of itself requiring new staff to perform necessary functions. The Borough Monitoring Team observed that this is apparent with respect to Work Order Reform ("WOR"), Procurement, Finance, and Human Resources, among other areas. Unfortunately, budget restraints for FY2023 have resulted in NYCHA's elimination of crucial staff lines that will impact the successful roll-out of Organizational Plan goals. WOR is one example where some new WOs are now being scheduled farther than eight months into the future. NYCHA simply needs more skilled trades workers.

### C. Conclusions

In most of the areas reviewed over the last 18 months, NYCHA has made efforts and begun a process of evaluating ways to decentralize its operations and allow for increased localized control. However, NYCHA still has not clearly defined the "end state" of its transformation and the concept of the Neighborhood Model remains largely undefined. Through various iterations NYCHA has loosely defined the Neighborhood Model as a collection of singular initiatives/changes including the reallocation of development assignments; the integration of mixed-finance and NextGen Operations Developments into the borough portfolio; the creation and assignment of Neighborhood Administrators; and the creation and assignment of Neighborhood Planners tasked to schedule skilled trades. NYCHA has since recognized that designing the operating model requires a more holistic review of central office interactions with developments, better defined roles and responsibilities, and tools to improve accountability. As the new operating model continues to evolve, it will be incumbent on the organization to figure out how to more holistically function as a single organization, and not operate as a series of standalone initiatives. Conceptualizing the Neighborhood Operating Model ultimately requires thought around resourcing and organizing developments to stand on their own, and in this instance, may require tough



decisions to rapidly move central office resources out into the boroughs. I look forward to sharing future reports with you, which we will be posting on the Monitor's website.

The Monitor will continue to work with the Program Management Office, S&I, the Office of the Chief Operating Officer, and relevant Department Managers, to address identified challenges and to inform the continued progress of NYCHA's transformation. Starting in Q2 of this year, the Monitor's public housing and project management SMEs (Quadel and Turner & Townsend) will be leading an initiative with NYCHA and HUD to better define and realign the roles of NYCHA's central office departments as the Authority continues to push out more responsibilities and decision-making to the boroughs and neighborhoods as it continues to design the Neighborhood Operating Model. All the information gathered, and assessments made by the Borough Monitor Team will be included as part of that effort.

## II. Heat Update Summary

This section of the quarterly report focuses on NYCHA's key performance data for the first half of the current heating season (through the end of January 2023), as well as the Monitor's assessment of NYCHA's efforts this past summer to prepare for the current heating season. As we have described in prior reports (and alluded to in the section above), NYCHA took major steps in 2022 to improve its Heating Management Services Department ("HMSD") including: 1) restructuring the department to better coordinate with property management staff at the neighborhoods to make NYCHA more efficient and responsive to heating service needs; 2) adding greatly needed front-line and supervisory staff; 3) updating its heating standard operating procedures ("SOP"); and 4) creating short and long-term plans to improve staff trainings. While these actions are significant and NYCHA is already realizing heating performance improvements, there is much more to do to ensure that heating services are consistently provided to residents. For its part, NYCHA has been working constructively with both the Monitor and HUD, as well as NYCHA's Environmental Health & Safety Heat Oversight Team ("EHS"), to continue to improve.

NYCHA has improved its performance this year as compared to the last heating season. The analytics and charts below describe various aspects of the current heat performance, including comparisons with past years. A main reason for the improved service is that HMSD did a better job this past summer preparing for the heating season than they have in the last few years. HMSD supervisors are also better identifying, assessing and responding to the challenges of their poorest performing heating equipment during this heating season which has helped to reduce the effects of equipment breakdowns. What also must be considered, which is contained in the graphics below, is that average outdoor temperatures have been higher this winter compared to a year ago, especially this past January.

Lower outdoor temperatures provide a greater challenge to NYCHA's heating equipment, largely because of the additional stress placed on the equipment to produce more heat, and then deliver the additional heat to all the buildings' apartments. For example, the Monitor data team performed analytics for the five days

of the polar vortex starting on December 23, 2022, when we experienced particularly low temperatures and sharp winds that drew a lot of heat from buildings. NYCHA experienced approximately 40 heat outages in those few days and some of the longest outage durations so far for this heating season. The key is to assess the data from these experiences when NYCHA's heating systems are being especially tested and use it to improve maintenance, repairs, and equipment replacements so that performance improves and is consistent despite weather fluctuations going forward.

A significant portion of the outages with longer duration times during these few particularly cold days were caused by failures in heating distribution systems, many related to pipes being exposed to cold temperatures which made them more susceptible to breakages. In response to this, HMSD worked with property management teams at the affected sites to better insulate the buildings, especially around areas where heating pipes are located. During the next cold spell in late January there were fewer distribution breakdowns at these locations. We also note that as HMSD improves its equipment preventive maintenance ("PM") process, which helps to lower the number of breakdowns, a greater percentage of NYCHA heat outages are being caused by distribution system problems – faulty pipes from the boilers to the units that experience leaks and/or clogs affecting heat delivery to apartments. As discussed below, despite financial and other challenges, NYCHA must improve its efforts to address this chronic and ever increasing problem of its ailing distribution systems.

In many ways the essential time for HMSD is the period between the end of May and the beginning of October when boilers and other heating equipment can be shut down for thorough PM and repairs. Given the age and often poor condition of much of NYCHA's equipment, an effective summer PM program is essential to prepare these resources or else heating services will surely suffer during the following winter. HMSD is already preparing for the coming off season to build on its improved performance during last summer's PM. Especially important is to ensure that the new staff it has recently acquired is properly trained and ready to fully engage in the summer PM effort. Additionally, there must be a clear, comprehensive plan to ensure all equipment is cleaned, maintained, and repaired where needed, and managers must conduct complete inspections so that all unsatisfactory conditions in boiler and tank rooms are identified and prioritized for repairs or replacements. HMSD and NYCHA property management must also make sure that similar efforts are undertaken for building heating distribution systems, including apartment radiators, since we know that distribution system breakdowns are generally the second leading cause of heating outages at NYCHA.

Another challenge HMSD has had has to do with their ability to timely obtain various equipment repair and replacement parts, especially on an emergency basis in responding to heating outages. As we have described in past Monitor reports, deficiencies in NYCHA's payment system for its vendors performing work and/or supplying materials to all areas of the Operations Division (as opposed to capital work) sometimes results in significant delays in paying for this work and/or materials. This discourages vendors from wanting to do business with NYCHA, which can limit the vendor pool NYCHA has to choose from. This has created a particular strain in



obtaining certain specialty parts or replacement equipment, especially for NYCHA's heating and elevator departments. NYCHA's Procurement Department has been working closely with each of these departments (and all of NYCHA Operations units) to improve their ability to obtain all materials needed for their operations, including taking advantage of NYCHA's tremendous potential buying power to reduce costs but the problems still persist. NYCHA's Operation Division, with the Finance and Procurement Departments must continue to work together to correct these flaws in its payment procedures so that NYCHA can establish itself as a good customer that vendors will want to work with.

### Heating Performance from October 1, 2022, to January 31, 2023

This section focuses on NYCHA's performance for the first half of the current heating season (October 1, 2022, through January 31, 2023). The main performance indicators under the Agreement are the number and duration of heating outages. Outages are circumstances when there is no heat service being provided to a building line, an entire building or an entire development.<sup>2</sup> At a minimum, outages affect an entire building stair hall, but they can also extend throughout the building or encompass an entire development. The root cause is generally a breakdown with either the equipment that produces the heat (e.g boilers) or the distribution system that delivers heat to the building's apartments. Examples would include malfunctioning boilers or a major blockage in the building's distribution piping that cuts off heat to affected units.

Heating outages at NYCHA are both planned and unplanned. NYCHA creates planned outages when it is necessary to shut off heat and/or hot water to perform heating equipment repairs. For example, it is sometimes necessary to shut off boilers to install valves that control the heat distribution in a building.<sup>3</sup> Unplanned outages, on the other hand, are unintended heating service disruptions that affect multiple apartments. They are generally caused by breakdowns in NYCHA's heating equipment or distribution systems but can also be caused by conditions beyond NYCHA's control, such as electrical, gas, or water outages.

The duration of an unplanned outage is measured from the start of the heating service disruption to the point when apartment temperatures return to proper levels after the cause of the disruption is fixed. For example, if a water main break cuts off water to a development and shuts off the boilers, the duration of the unplanned outage is the time between the boiler shutdown and when apartment temperatures return to proper levels after the boilers are operational again.

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<sup>2</sup> The New York City Administrative Code establishes minimum apartment temperatures that landlords must comply with between October 1st and May 31st of the following year – considered the “heating season.”

<sup>3</sup> The Agreement requires that NYCHA provide affected residents at least 48 hours' notice prior to the start of a planned outage. Additionally, NYCHA will generally not create a planned outage unless exterior temperatures are at least 40° F.

The Agreement requires that NYCHA meet the following specific performance metrics with respect to outages (which include both planned and unplanned outages):

- restore heat to units affected by a heating shortage within an average 12 hours;
- restore heat to 85% of affected units within 24 hours;
- investigate the root causes of heat outages that exceed 12 hours.

The Monitor team, NYCHA (HMSD and EHS), and HUD examine the root causes and underlying factors that contribute to heating outages and their duration. This includes operational factors such as the frequency and thoroughness of PM and the timely repair of heating equipment. As described below, the Monitor evaluates the quality and completeness of the work order information for maintenance and repair work performed by staff and vendors, and also conducts field inspections to spot-check the accuracy of the information in the work orders. This data is then used to create more effective strategies to improve the comprehensiveness of maintenance work, identify areas where improved staff training is needed, and ensure that equipment inspections are thorough and that repairs are tracked and addressed.

In addition, the Monitor oversees and assesses the work of NYCHA’s Capital Division in delivering the boiler replacement projects it is obligated to complete under the Agreement, along with related capital work performed for heating services. Given the age and often poor condition of much of NYCHA’s equipment and building infrastructure, proper and timely delivery of these projects to replace the worst performing equipment is an essential element of NYCHA’s ability to provide residents with heating and hot water services.

As recently published in the report “Measuring NYCHA’s Compliance with the HUD Agreement” (released November 2022) [Monitor Report Nov 2022](#) data from the prior heating season (2021 – 2022) shows overall that NYCHA is experiencing fewer unplanned heating outages and improved response times in most areas. Figure 1 below shows a reduction in total outages from the 22/23 season by 32 outages relative to the 21/22 season. December 2022 saw 20 more outages than the same month the prior year.

*Figure 1. Heat Overview Data on Outages and Response Times*

Outage Count This Period - Heating Season 22/23 Vs. 21/22			Operating Development Outage Count - 21/22
<b>225</b> Outage Count 22/23	<b>358</b> Outage Count this period 21/22	<b>-133</b> Outage Delta (22/23 Vs. 21/22)	<b>546</b>
Count of Outage Work Orders <i>January 2023</i> <b>61</b> Outage Count 22/23	Count of Outage Work Orders <i>December 2022</i> <b>94</b> Outage Count 22/23	Avg Work Order Duration Time <i>January 2023</i> <b>8.00</b> Hours	Avg Work Order Duration Time <i>December 2022</i> <b>8.84</b> Hours
Count of Outage Work Orders <i>January 2022</i> <b>157</b> Outage Count 21/22	Count of Outage Work Orders <i>December 2021</i> <b>77</b> Outage Count 21/22	Avg Work Order Duration Time <i>January 2022</i> <b>10.17</b> Hours	Avg Work Order Duration Time <i>December 2021</i> <b>8.31</b> Hours

NYCHA's improved average heating performance through this winter was anticipated to some extent because NYCHA's heating equipment was better prepared for the current heating season than it was prior to the start of the 2021/2022 winter.

Figure 2 below, prepared by the Monitor heat team based on Maximo data,<sup>4</sup> provides an overview of NYCHA's worst performing developments and boroughs. An analysis of the data shows the following:

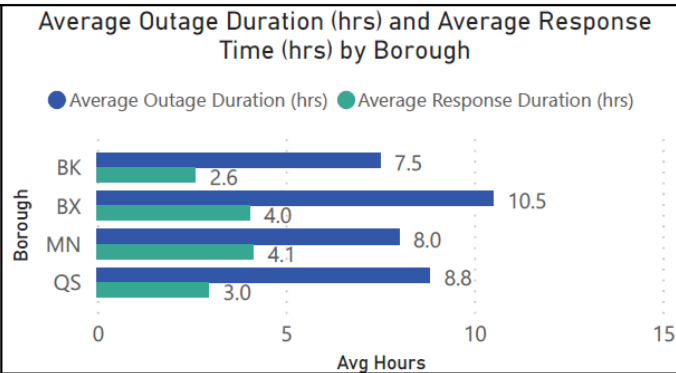
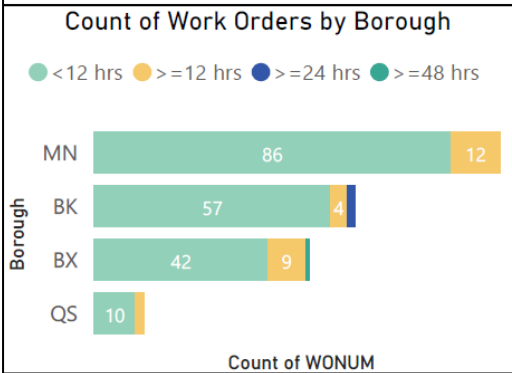
1. There were 225 unplanned heating outages thus far in the heating season (October 1<sup>st</sup> through January 31<sup>st</sup>), 133 fewer than this time last heating season.
2. The average outage duration was 8.48 hours, under the last heating season duration average of 9.32 hours.
3. The count of unplanned outages with durations greater than 12 hours was 27 outages thus far in the season, 42 fewer than the last season. Two of the outages lasted between 24 and 48 hours (eleven fewer than last year), with two outage lasting more than 48 hours (one more than last year).
4. The number of affected developments thus far is 93, with the most outages at Baruch (9), Van Dyke I (8), Tapscott Street Rehab (7), Riis II (6), Straus (6).
5. Approximately 86% of outages are associated with NYCHA-managed developments. The other 14% of outages are in developments managed by a third-party vendor. Response times by third-party vendors are substantially lower than NYCHA response times.
6. Major outage causes this heating season are attributed to boilers, with 122 boiler related outages reported thus far. Distribution outages are the next biggest contributor to outages, with 79 distribution outages reported this heating season.

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<sup>4</sup> Maximo is NYCHA's primary data base that contains all the information from its WO system.

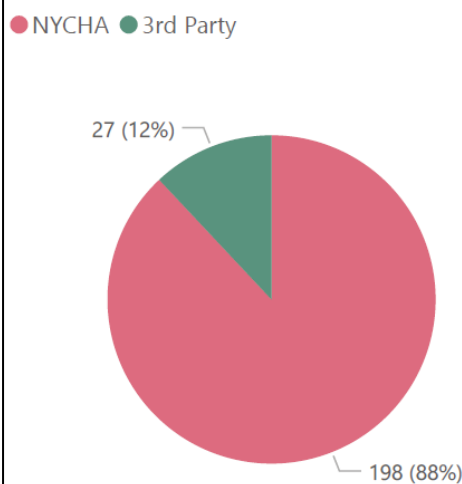
Figure 2. Heat Outage Summary by Development, Borough, and Ownership

DESCRIPTION	Count of Outage WOs Created	Total Outage WOs Duration (hrs)	Average of Outage WOs Duration (hrs)	Total Response WOs Duration (hrs)	Average of Reponse WOs Duration (hrs)
BARUCH	9	67.77	7.53	16.30	1.81
VAN DYKE I	8	61.92	7.74	20.88	2.92
TAPSCOTT STREET REHAB	7	71.44	10.21	32.59	4.66
RIIS II	6	34.10	5.68	5.35	0.89
STRAUS	6	44.98	7.50	11.25	1.87
1162-1176 WASHINGTON AVENUE	5	64.83	12.97	40.18	8.04
DREW-HAMILTON	5	47.25	9.45	14.77	2.95
LINCOLN	5	29.11	5.82	9.21	2.38
OCEAN HILL-BROWNSVILLE	5	70.57	14.11	0.77	0.25
RIIS	5	27.43	5.49	3.13	0.63
VLADECK	5	49.96	9.99	43.50	8.70
ADAMS	4	27.98	7.00	11.18	2.80
<b>Total</b>	<b>225</b>	<b>1908.15</b>	<b>8.48</b>	<b>801.75</b>	<b>3.63</b>

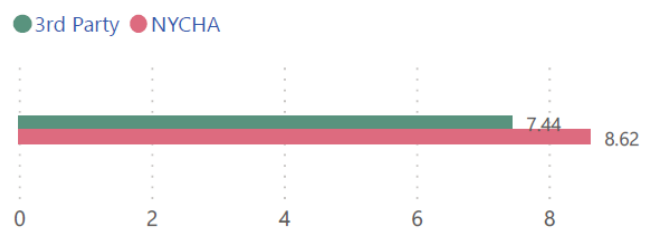


**NYCHA vs 3rd Party Vendors**

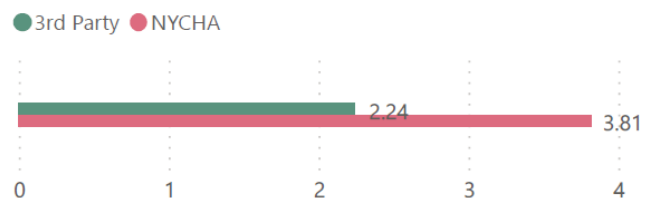
**Count of Outages by NYCHA vs 3rd Party**



**Avg Outage Duration (hrs) by NYCHA vs 3rd Party**



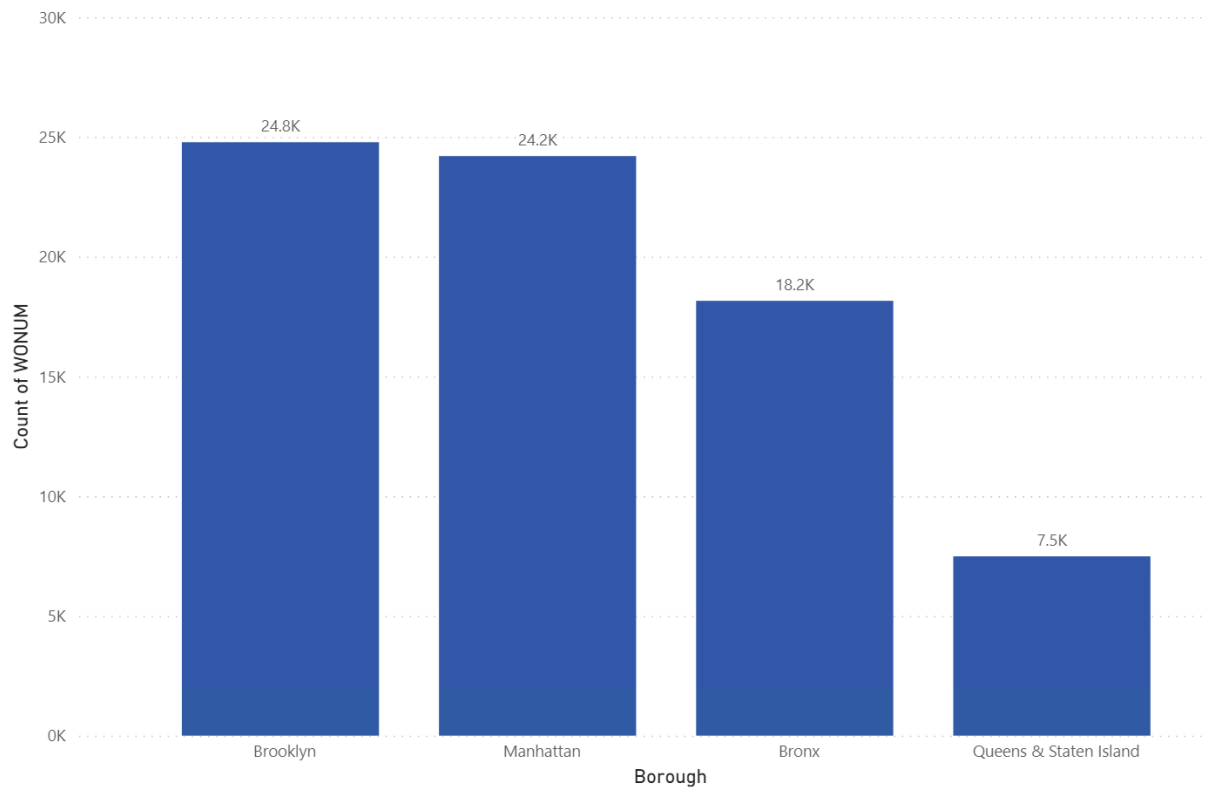
**Avg Response Duration (hrs) by NYCHA vs 3rd Party**



**No-Heat Complaints:** Residents of NYCHA developments submit complaints to the Customer Contact Center when they are not properly receiving heat. Three or more complaints at a development trigger automatic WO creation to be investigated by HMSD. The following is a summary of heat complaints (October 1, 2022 through

January 31, 2023), the first summarizing complaints by borough, and the second identifying the top 10 developments with the highest unique complaint count.

Count of No Heat Complaints

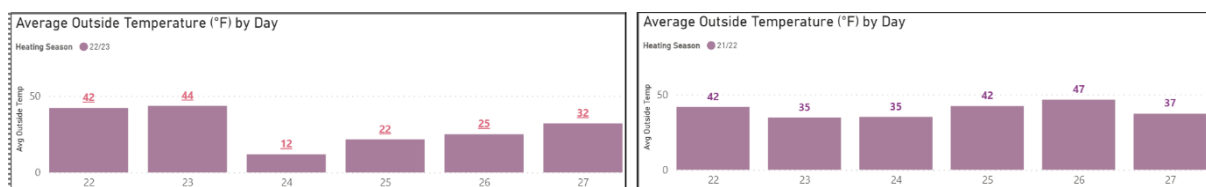


Development	Count of WONUM
BARUCH	1959
EDENWALD	1728
WHITMAN	1546
WAGNER	1529
ASTORIA	1469
GRANT	1413
INGERSOLL	1382
KING TOWERS	1342
VAN DYKE I	1230
SAMUEL (CITY)	1123
MARCY	1098
NOSTRAND	1080
QUEENSBRIDGE NORTH	1001
VLADECK	980
SOUNDVIEW	968
POMONOK	949
PARKSIDE	944
BROWNSVILLE	943
RED HOOK WEST	918
BAY VIEW	908
BREVOORT	868
JEFFERSON	845
RIIS	840
DYCKMAN	838
WOODSIDE	817
SUMNER	761

**Polar Vortex Analysis:** From approximately December 23rd to December 27th, 2022, a weather phenomenon known as the “polar vortex” created the first cold snap of the season. With temperatures dropping over 50 degrees Fahrenheit within a two-hour period, heating systems and associated distribution system piping were put to the test. Comparing this six-day period to the same time period the year before provides insight into the performance of the heating system on colder than average versus average temperatures.

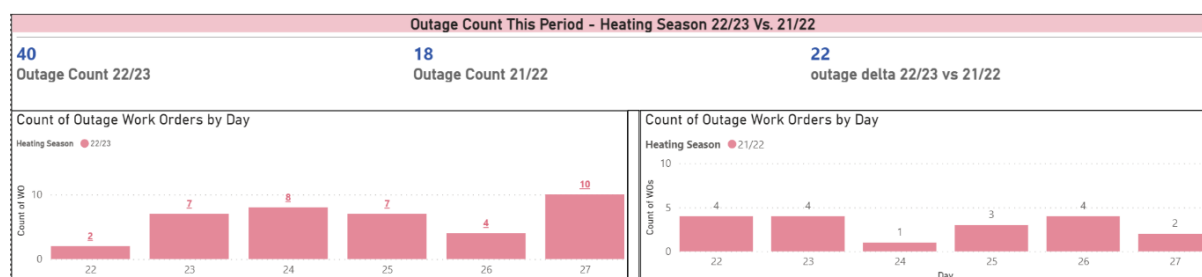
The first pair of bar charts shows the difference in average temperature on each day of the six-day period, comparing 2022 to 2021. Results show a substantial temperature difference beginning on December 23<sup>rd</sup>, before the temperatures eventually evened out on the last day of the timespan.

*Figure 3. Outside Average Daily Temperature from December 22 to Dec 27 in both 2021 and 2022*



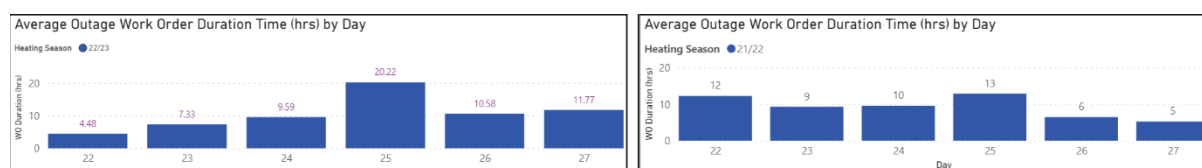
The second graphic shows a total count of outages over both time periods, 22 more outages in 2022 compared to 2021.

Figure 4. Daily Heat Outage Count from December 22 to Dec 27 in both 2021 and 2022



The final chart shows average response time by each day. Response times were better in 2022 than in 2021 until December 25<sup>th</sup> where response times in 2022 peaked. Response times are impacted by day of the week and time of the day when outages occur, number and locations of personnel available to respond, and other outages occurring at the same time. Response times for this heating season were particularly impacted by personnel out sick due to Covid.

Figure 5. Average WO Outage Duration Time from December 22 to Dec 27 in both 2021 and 2022



Conclusions can be drawn that the cold weather had a substantial impact on outages and response times in December 2022 relative to December 2021.

#### A. Heat Metrics Trends: Boiler vs Distribution Asset Failure

Every building heating system is made up of two basic parts – the equipment that produces the heat (often boilers) and the equipment that delivers or distributes that heat to every part of the building (often including vacuum tanks, distribution pipes, and apartment radiators), commonly referred to as the building’s heat distribution system. All this equipment must function for proper heating service delivery.

NYCHA maintains a vast heating operation either directly or through a third-party vendor, including 1,320 boilers and 847 instantaneous water heaters. The average age of NYCHA boilers is about 26 years; the average expected useful lifespan of the boilers is 20 to 25 years. In addition, NYCHA manages about 1,800 pieces of distribution equipment that include condensate tanks, vacuum tanks, and zone valves.

An outage can occur directly because of a boiler breakdown, its associated upstream or downstream equipment, or anywhere within the distribution system that transports heat to residents. Depending on where the outage occurs, it is assigned a general cause or ‘failure’ code in Maximo that identifies whether the cause was associated with boilers, distribution, electrical, external, internal, or hot water. Boiler outages can



have a detailed failure code that indicates if the outage is associated with boiler controls, burner, gas, leaks, or no water. Distribution outages can have a detailed cause code that indicates if the outage was associated with boiler steam stop, building steam stop, condensate return riser, condensate tank, steam supply riser, vacuum tank or zone valve. In the event of a major boiler room failure or where restoration of the plant is projected to take significantly longer than 24 hours, NYCHA uses mobile boilers to restore heat to the residents. As of December 2022, NYCHA has 48 staged mobile boilers to support out-of-service boilers at various developments.

Figure 6 below summarizes outages due to issues with either boilers or distribution systems. The data shows that boiler-related outages became an increasingly larger portion of overall outages in recent heating seasons, subsequent to the 2019-2020 heating season. It is important to note that outage records do not identify the specific boiler numbers or asset IDs associated with a boiler outage. As a result, there is no way to tell how many outages at a development were associated with a specific boiler. This hinders the Monitor’s and HMSD’s ability to pinpoint problem boiler assets.

*Figure 6. Heat Outage Totals by Heat Season Grouped by Boiler or Distribution Outage Problem Source (2022/23 data from October 1, 2022 through January 31, 2023)*

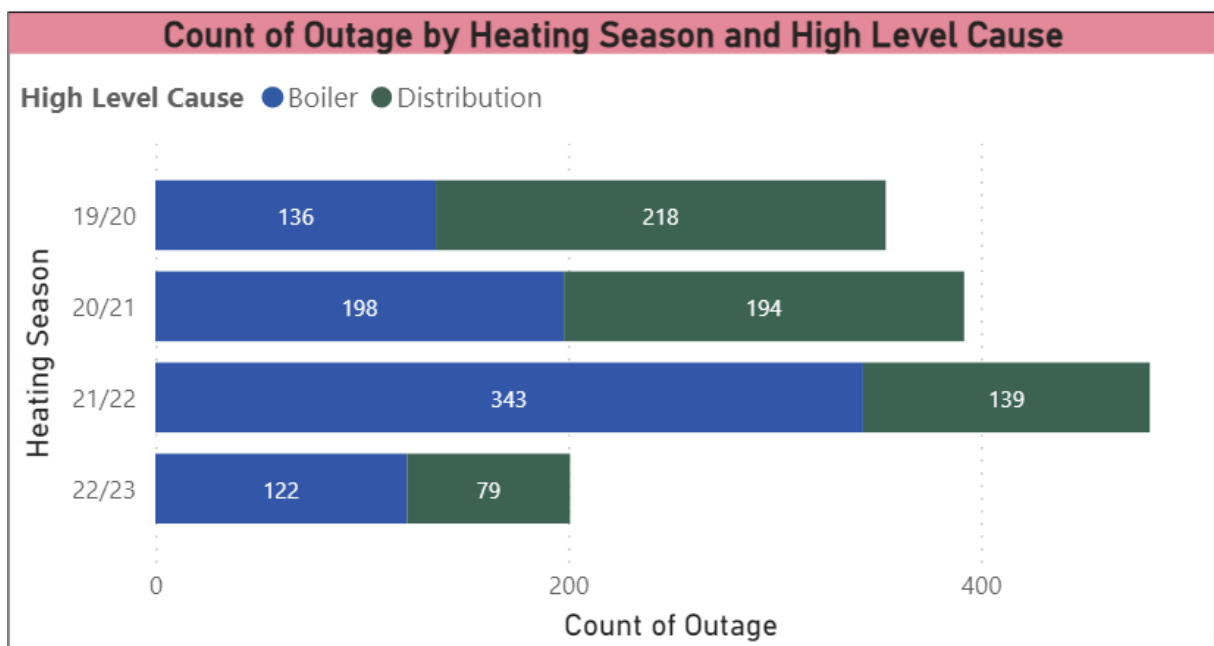
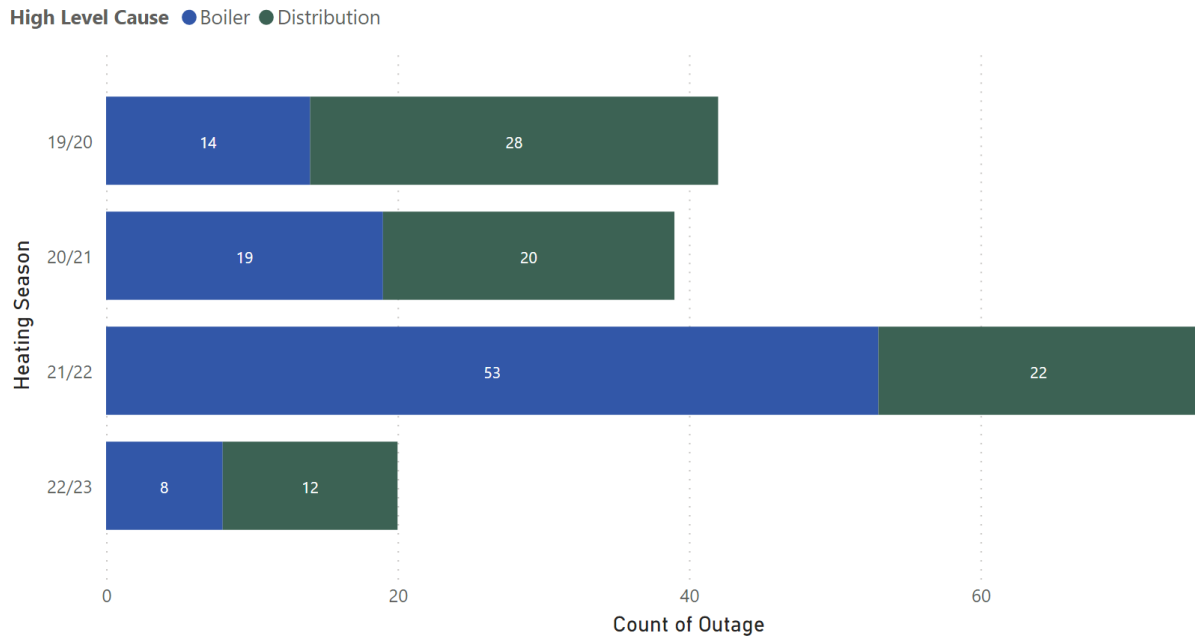


Figure 7 below also summarizes outages by heating season and boilers/distribution systems, but only filters for outages with durations beyond 12 hours. A similar pattern follows from the observations above, however, in the current heating season, distribution outages make up a larger portion. If this pattern persists through the remainder of the heating season, distribution outages may represent a larger portion of longer duration outages, unlike the portion of outages experienced overall.

Figure 7. Heat Outage Totals by Heat Season Grouped by Boiler or Distribution Outage Problem Source Filtered by Outage over 12 hours



NYCHA’s aging distribution systems – especially the pipes in the walls designed to carry the heat from boiler rooms to individual units – are generally as old as the buildings themselves. As these systems continue to age without proper rehabilitation work or in some cases replacement altogether, the outages caused by distribution breakdowns will increase both in number and duration. Old distribution pipes are susceptible to both leaks and clogs that weaken their effectiveness. Leaks in pipes, especially large and/or multiple leaks, reduce the pressure in the systems, lessening heat delivery. Clogs or other obstructions, often created as pipes deteriorate from the inside causing a buildup of material, also lessen system pressure. Eventually these clogs will grow to choke the system completely if not removed and repaired.

Since the start of the monitorship, we have been concerned that NYCHA has not focused sufficient attention and resources on properly maintaining and replacing its ailing heat distribution systems. This is especially true regarding the various heating capital projects NYCHA has undertaken that focus on boiler replacements and other related equipment but include no upgrades to the corresponding distributions systems. While it should be acknowledged that replacing heating pipes in development walls is very expensive, time consuming, and highly disruptive to residents who would likely have to be relocated from their apartments for the months needed to complete the work – NYCHA has reached a point when it can no longer avoid facing the fact that some of these systems must be immediately replaced in its buildings.

A recent cautionary event occurred last winter at a certain senior development building when its distribution system (mainly the heating pipes) essentially reached a ‘point of no return’ in that the system was in such bad shape that HMSD assessed that its frequent system leaks could no longer be reliably repaired. Fearing the system would permanently fail altogether – requiring the quick relocation of all the residents because heat could no longer be provided – HMSD did what it could (and succeeded) in keeping

the system operational until the end of the 2021/2022 winter. Over this past summer all the residents were moved from the building which will now undergo a multi-year comprehensive repair of all the building's piping systems.

We know that there are currently a few other NYCHA buildings that are close to or in equally as bad condition. Even more prevalent are NYCHA buildings with distribution system conditions that require much less capital rehabilitation work so long as it is provided soon. Prioritizing this work will likely avoid circumstances when an entire building must be evacuated for an immediate comprehensive system replacement. NYCHA and the various governmental agencies that provide its funding must face this distribution system situation head on. This requires that NYCHA comprehensively identify all its buildings in need of immediate distribution system replacements (from those that require minor capital work to those with more severe needs) and then design the appropriate plans. HMSD supervisors have a good idea of these sites. The key is to understand the full scope of the needed work now and then work to acquire the necessary resources – not the other way around, where NYCHA starts by using the constraints of its available resources to set the scope of what it will look to accomplish. This long-feared future concerning the degrading of these systems is now unfortunately becoming the present circumstances for NYCHA. Despite the great monetary expense, these problems must be responsibly and immediately addressed.

Additionally, NYCHA and HMSD must ensure that comprehensive PM on heating distribution systems is completed as part of the summer maintenance program. NYCHA has recently updated its heat SOPs, which includes a schedule and description of maintenance procedures for distribution systems. The SOPs largely focus on cleaning out pipes and traps and locating system leaks. HMSD staff – both technicians performing the work and supervisors who then assess and inspect all these assets for their readiness for the heating season – must be properly trained and managed to do their jobs correctly. HMSD and the Monitor team have been creating quick reference guides that take key sections of the new SOP and draft abbreviated field guides to better support HMSD staff in their work. As part of this effort, the Monitor is working to add to the existing quick reference field guides already created for all the essential parts of the summer PM process – the information drawn from HMSD's heat SOP. As described below, the intention is to have HMSD use these guides as part of their effort to ensure that all aspects of the summer PM program are properly carried out.

While NYCHA should have responded sooner to rehabilitate many of its distribution systems, it is not too late to address these problems now. There are things NYCHA can and has already begun. The comprehensive updates and overhaul of NYCHA's capital project management procedures by the Asset and Capital Management Department (formerly NYCHA's Capital Projects Division) are beginning to provide a more reliable and effective delivery of NYCHA's capital projects. As we have said regarding new heat system replacement projects, rehabilitating corresponding distribution systems must be included for those projects. Additionally, the recent restructuring and revitalization of HMSD started in 2022 is already providing this department with greater resources. NYCHA must work towards staff being fully trained and managed to properly address all its heating asset needs and bring their

performance to a higher level. This includes heating distribution maintenance, which goes a long way in keeping these systems operational.

## B. Summer 2022 PM Program: The Monitor's Assessment

During the heating off-season, NYCHA's HMSD conducts most of its annual summer PM program on its essential heating equipment in its boiler and tank rooms. Preparations and initial work for the off-season begins as early as January of that same year. HMSD's goal is to complete all heating equipment (including distribution system) PM and repairs, enabling them to provide heat reliably and consistently for its residents come October 1st.

NYCHA currently has a detailed and comprehensive set of SOPs for staff to follow for this process. For the summer PM program to be effective, HMSD staff must understand and properly perform maintenance work as described in the relevant SOPs. The main objectives of the PM program are the following:

- Boiler and tank rooms are thoroughly inspected
- All needed repairs are identified, prioritized, and tracked
- Where applicable, descaling boilers of mineral deposit buildup while they are shut down and drained of water during the summer, referred to as 'overhauling' the boilers
- Repair all tank room ancillary equipment and ensure it is operational

As we have previously described, starting in early 2022, new upper-level management at NYCHA began a comprehensive process to restructure and revitalize HMSD and additionally to focus on strengthening the summer PM program. Part of the strategy was to draw on supplemental resources to increase HMSD's ability to complete more of the summer preparatory work, particularly in response to the generally poor performance the year before in getting the off-season work done. This included forming a more collaborative interaction between the Monitor heat team, EHS, HUD, and HMSD, which began by establishing a more effective summer PM plan that laid out all stakeholder roles and responsibilities. There was also an agreement that the stakeholders would engage in weekly PM meetings to report on progress, identify challenges, and discuss potential solutions to roadblocks that arose. Another resource HMSD drew upon last summer was using vendors to conduct more of the equipment maintenance work (*overhaul* of boilers) than they had done in years past. This would free up HMSD staff to expand their PM work to cover more of the heating equipment.

The role of the Monitor, EHS, and HUD was to engage in field inspections of HMSD and vendor work, prepare detailed reports describing conditions found and assessments of work performed, and offer suggestions for improvements. The parties also constantly analyzed PM-related WO data as an additional means to understanding summer program progress and reported findings back to the group as part of the weekly meetings. The Monitor team also focused on staff compliance with the heat SOPs, which are designed to ensure that heating equipment is inspected, serviced, and repaired to reliably provide heat to NYCHA residents during the heating season. The protocols set forth in the SOPs govern staff responsibilities related to

heating PM, ranging from scheduling of work, specification of work activity, performance of work, inspection of completed work, and comprehensive cataloguing in the Maximo system to track progress.

### **1. Use of a Vendor to Supplement HMSD Work**

HMSD's strategy to bring on a vendor to perform a larger portion of the boiler overhaul provided a boost that enabled HMSD staff to expand their reach to more heating equipment. HMSD has decided to use the same vendor in a similar capacity again this summer, and some adjustments will be made based on lessons learned last summer.

For example, there were some breakdowns in the coordination and communications between HMSD and vendor staff that hindered progress at some sites. This most often happened when vendor staff would arrive at a boiler room ready to perform overhaul work and HMSD did not have the boilers ready (ex: boilers were not drained of water and/or there were physical obstructions around the boilers that prevented access to do the work). Vendor staff then had to immediately find other available boilers to work on, which often cost them time. Once the boiler overhaul work was completed by the vendor, it is important for the vendor to be on-site with the HMSD staff as they were refilled with water to perform a hydro test to determine whether there are any leaks and that the overhaul work was properly done. There were several instances when vendor staff were not present for the hydro tests because of communication breakdowns which sometimes resulted in the vendor being called back to reopen the boilers to complete their work. HMSD had weekly meetings with the vendor to work on these and other issues and some progress was made through the summer to correct the communication gaps. Prior to the vendor's start this year, HMSD has been working on a plan to establish a more reliable communication structure to limit the delays.

Another concern was that the field inspections revealed that there were some inconsistencies with the quality of vendor staff overhaul work. There were instances when boilers were not thoroughly cleaned, leaving soot and other residue that when discovered, required HMSD to send the vendor back to complete the work. Field inspections also found that vendor staff did not always adhere to NYCHA's SOPs in performing their work, also requiring that the vendor correct the work. All of this slowed the vendor's progress. HMSD was quick to address these issues in their weekly meetings with the vendor, and work consistency generally improved as the summer progressed. Even then, we were told by some HMSD staff that a few of the vendor-overhauled boilers needed additional work done after the vendor staff completed their work. As a related matter, HMSD concluded that there were certain types of NYCHA boilers that the vendor was less adept at properly overhauling, even after multiple attempts. For the coming season, HMSD will likely confine the vendor's work mainly to NYCHA's hydrotherm boilers, which the vendor generally cleaned and prepared well.

Lastly, the vendor was not able to maintain the schedule it had agreed to at the start of the summer. This resulted in HMSD having to 'take back' some of the boilers to complete, which started happening during the latter part of the summer. The slowing of vendor work progress happened for the reasons described above, and also because the vendor seemed to lose some staff as the summer progressed. HMSD is already

working on these issues with the vendor in preparation for their work which should begin in April.

Despite these needed adjustments to the vendor's work, bringing on the vendor to perform a significant portion of the boiler overhaul work is an effective strategy. The vendor readily engaged with HMSD management during last summer to correct the problems that arose and there is every indication they will improve both the quality and quantity of their work for HMSD this year.

## **2. Concerns Regarding the Quality of Maximo PM Data**

The overall quality of NYCHA's heating data is lacking – largely because it is incomplete – which hinders NYCHA and HMSD's ability to assess the progress and quality of the overhaul work, inspections, and follow-on activities. Examples of issues are cited below.

Based on the summer overhaul information entered in Maximo, it is not possible to track the actual time spent on overhauls by boiler. The actual time spent by staff on overhaul work is important to assess whether the work was comprehensively done. The durations entered in Maximo are often incorrect and there is a wide variation in time recorded in Maximo for boiler inspections. This made it challenging for the Monitor and EHS to assess the quality of the inspections. For both management and oversight purposes, HMSD must have staff input more accurate and complete information in these WOs.

Two years ago, as a means to improve its data related to needed PM and repair work, HMSD engaged with NYCHA's IT unit to develop and create distinct preventive maintenance (PM) and inspection (IN) WOs for every key piece of its heating equipment. This would enable NYCHA to better know whether annual PM work followed by comprehensive inspections were being conducted. By reviewing the PM WOs, one would be able to determine whether HMSD staff had completed proper PM on every component of the equipment. A manager or the Monitor could then field spot check the completeness of work to both assess readiness for the heating season and the quality of staff performance. Once the PM WO was completed and closed, the new system automatically generates an IN WO for that equipment. The process then requires the assigned HMSD Superintendent for that development to conduct a field inspection to complete the IN WO. The purpose is to identify any unsatisfactory conditions for that equipment – usually a component in need of some repair or replacement – which then automatically creates a related (or child) WO connected in Maximo to the IN WO for that piece of equipment. Given the thousands of pieces of heating equipment across NYCHA, having a system that automatically ties all needed repairs and component replacements directly back to a specific piece of equipment is essential to comprehensively identify, prioritize, and then track the completion of needed work.

Last summer HMSD did not consistently use their PM and IN WOs properly. In our review of these WOs, we often saw that PM and IN WOs were too often closed by staff without providing much detail of the work completed. The Monitor team reviewed IN WOs particularly for the developments with the most heat outages the year before to assess their accuracy. Many of them were closed without identifying *any* unsatisfactory conditions, others only a few. When we conducted corresponding field



inspections at these developments, we found that in contrast to the information on the IN WOs, multiple repairs and component replacements were needed. When we then tried to find separate corrective maintenance (CM) WOs for these repairs, we often found that they had been created, but not as part of the IN WO process. This meant that it was very difficult for anyone to know whether work was still necessary to properly prepare the equipment for the coming heating season.

When developments have boilers that are incapacitated for long time periods during the heating season, they install mobile boilers to temporarily provide heat. Through last summer and well into the current heating season, data on mobile boiler assets were not entered in Maximo. Thus, there was no process or effective tracking for any work related to them and the Monitor had no insight into the 2022 overhaul activities for mobile boilers. It is unknown if any overhaul activities were carried out on mobile boilers. This is a problem because, for some developments, NYCHA is dependent primarily on mobile boilers to provide heat for months and even years in some cases, and any breakdown in these boilers would have a detrimental impact on residents.

HMSD is taking steps to improve its data, largely focused on ensuring that staff are properly using the PM WO system as it was designed. Part of this effort includes making tweaks to the PM and IN WOs so that staff are entering the full information. The Monitor team and EHS will work with HMSD as the summer PM process begins to identify and point out any areas where procedures are not being followed so that they can be quickly corrected.

### **3. Need for Better Training and Management of HMSD Staff**

One of the main focuses of HMSD's restructuring plan is for NYCHA to address the needs for more effective training and management of staff work. This is particularly so because HMSD's line staff (HPTs) generally start at NYCHA with little to no prior training or work experience. One of the most effective aspects of the new HMSD structure is that the number of Heating Superintendents (the managers who supervise all HPTs) has now been doubled so that they cover fewer developments and manage less staff. Heating Superintendents are also assigned to specific developments, close in geographic proximity (consistent with NYCHA's Neighborhood Model), to better enable them to learn and know the developments (and the specific heating equipment) they cover and develop better relationships with all the NYCHA staff they work with.

Last summer, prior to the on-boarding of the additional Superintendents, we found in our field inspections and staff interviews that the quality of PM work across the developments was generally uneven. In a few cases, work on some types of heating equipment was not being done at all prior to the start of the heating season. Based on what we saw and heard, the main reasons for this were that staff sometimes did not know how to fully perform their work and, in some cases, required greater oversight from managers to get it done. One concern is a sense that managers sometimes focus more on completing (closing) all PM WOs that would indicate that all the work was completed, rather than making sure all the work was properly done. This points to inconsistent management, which must also be addressed.



#### **4. Recommendations for Summer 2023 PM Program**

There are a number of important aspects of the summer PM program that HMSD and NYCHA are improving, but two particularly essential ones are 1) better compliance with SOP WO procedures to improve overall heat data quantity and quality, and 2) establishing a comprehensive training structure for both HPTs and managers, especially starting now and for the next 15 to 18 months before HMSD is ready to roll out courses in its newly constructed Heat Lab, a facility containing all the types of NYCHA's current equipment for hands-on staff training.

##### Improving Heat Data

Since the beginning of the Monitorship, our heat team has been pushing HMSD to create the means to develop a comprehensive list of all needed repairs (including component replacements) for all its equipment. While NYCHA did create a system to better prioritize and track the full replacements of its essential heating equipment (Operational Investment and Critical Items tracker), the list we are speaking about here relates to making sure that all needed repairs on heating equipment are identified and tracked for completion. We acknowledge that this is no simple task as there are thousands of pieces of this equipment at NYCHA, and given the size, complexity and poor condition of much of this equipment, a full list of all needed repairs would be immense. That said, it is essential for NYCHA's heating services that HMSD can easily produce a comprehensive listing of its equipment for every boiler and tank room at every development. This listing would allow NYCHA to understand their vulnerabilities for equipment breakdowns (creating outages) at every site, and would also allow for the full identification, prioritization, and then reliable tracking of the timely completion of essential repair work. Absent a system where *all* related repair WOs are automatically tied to each specific piece of equipment (as the existing PM/IN WO process does), there is otherwise only limited capability to locate all individually created CM WOs for equipment repairs within Maximo. HMSD HPTs and managers simply need to use their existing WO systems currently in place and HMSD will be significantly ahead of where it is now to better understand its equipment needs, which among other things, will lead to the more effective use of its limited monetary resources. HMSD supports this effort and has committed to working with the Monitor team and EHS to improve compliance.

##### HMSD Training

The issues regarding improving training for HMSD staff are more numerous and, in some instances, more challenging to achieve. But as stated above, HMSD must find the means *now* to provide more essential training for its HPTs and managers. The planned Heat Lab will enable HMSD to train its own staff, which among other advantages, allows HMSD to directly assess and evaluate staff competencies. NYCHA's elevator department has been successfully using a similar model for years.

But, at best, the Heat Lab will not be operational until the middle of 2024. HMSD's training needs cannot wait that long and HMSD's current interim training measures (classroom training) do not train sufficient staff quickly enough. NYCHA's Learning &

Development (“L&D”) heating facility also cannot accommodate enough trainees to provide expedited training.

We propose that HMSD and NYCHA immediately establish an in-field training structure for both HPTs and managers, many of whom are new at HMSD as part of the additional staff brought on in the last few months under the restructuring program. HMSD and L&D have already started to establish a more structured field training component to their overall heat training curriculum. The Monitor team has heating SMEs and other PHA experts who are available to work with NYCHA’s SMEs to complete an effective, comprehensive in-field heating training curriculum. The general structure would be to create a thorough in-field course ultimately to be delivered by NYCHA’s Supervisors and more experienced HPTs for the remaining HPTs. There should also be an in-field course to train Heating Superintendents, largely focused on providing more effective direction, oversight, and support to the staff they manage.

The goal would be to ensure that all HMSD staff are being taught the same procedures and processes in both their work in the field and their use of WOs to input data into Maximo. NYCHA just completed the task of updating its heating SOPs. While having detailed, comprehensive written procedures for HMSD’s work is a necessary first step, the SOP alone – even making sure that every HMSD staff person has a copy – is far from sufficient to support staff in understanding the procedures and how to use them in conducting their work. The thought is that this new in-field training structure would complement the existing L&D training. With the installation of new boiler and heating-related systems, HPT and supervisors should receive in-field training to properly maintain and troubleshoot this equipment. For high-pressure boiler systems managed by plumbing specialists, HPTs and supervisors should have a minimum level of training on managing and detecting problems with these systems.

As one measure to support the in-field training (as stated above), the Monitor heat team would work with NYCHA to complete the quick reference guides for the essential components of boiler/tank room maintenance and repair work. These guides will be short, concise, and complete for each of the subject areas they cover. We will also devise a means to make them readily available in boiler and tank rooms. The in-field instructions would allow staff to see the procedures being carried out on the actual equipment.

The training would also include showing HPTs how to properly use the PM WO on a handheld device as actual PM work on equipment is being done. Superintendents would be provided with a demonstration of using the IN WO to conduct boiler overhaul and other equipment inspections on actual equipment in the field.

With additional management staff, HMSD now has the capacity to immediately create in-field training, which will better support HPTs in doing their jobs and enhance the ability of managers to know their staffs’ capabilities, weaknesses, and areas where more oversight and support are needed.

### III. Waste Management

Waste management throughout the NYCHA portfolio has made significant strides since 2019, when the HUD Agreement was finalized and the Monitorship began. Paragraph 45 of Exhibit B to the Agreement requires that:

. . . NYCHA shall, no less than once every 24 hours, inspect the grounds and common areas of each building for cleaning and maintenance needs, including pests and trash, and correct such conditions. In particular, NYCHA shall ensure that trash on the grounds or common areas of each NYCHA building is collected and either removed from the premises or stored in a manner that prevents access by pests at least once every 24 hours.

Given NYCHA's finite human resources, measuring compliance with these requirements at every development on a *daily* basis – so as to ensure *ongoing portfolio-wide* satisfaction – has been a challenge. As we describe below, however, NYCHA has successfully met that challenge, and based on the Monitor's assessment and data regularly gathered by the WMD, is currently meeting the portfolio-wide requirements of Paragraph 45 on an ongoing basis. First, we describe the WMD's measurement of *literal* compliance with Paragraph 45, that is, collection and secure storage and/or removal of trash at least once daily at every development. Second, we describe NYCHA's broader efforts to maintain each development in a clean condition on an ongoing basis.

Literal compliance with Paragraph 45: In 2022, there were four modes of storage/collection of garbage at NYCHA sites: containerized storage in a development's waste yard (39% of NYCHA sites); containerized curbside collection (30%); bagged curbside collection (9%); and shared containerized storage between two or more developments (22%), for a total of 361 garbage collection sites. The Department of Sanitation ("DSNY") was responsible for trash removal from these sites 2 or 3 days a week.

Starting in 2022, WMD has maintained a waste management data dashboard that records the following daily activities at each of these 361 sites: (1) whether the trash was stored; (2) whether any curbside supplemental service or storage was applied, e.g., rear loader pilot service (described below); (3) whether the trash was collected at least once; and (4) whether it was removed from the development. The property manager or their designee has been responsible for ensuring that these daily activities have been performed; for example, if the trash is removed by DSNY only 2 or 3 times a week, the issue is whether the trash has been collected on the "off days" and stored for later removal by DSNY.

Starting in 2022, the WMD initiated a pilot program to test the effectiveness of using small rear loading garbage trucks. The rear loader pilot service parenthetically referenced above is a pilot project underway in Brooklyn whereby DSNY garbage removal at curbside pickup sites (where the garbage is stored in trash bags) is

supplemented by removal by NYCHA garbage trucks 3 days a week, resulting in garbage pick-up 5 or 6 days a week. The NYCHA garbage trucks include two 6-yard rear loaders, and the newest addition a 25-yard rear loader, pictured here:

*NYCHA's 6 Yard Garbage Trucks*



*NYCHA's 25 Yard Garbage Truck*



WMD has advised the Monitor that, as of the end of 2022, 100% of the 361 sites have been indicating that all necessary functions listed above have been done. An enhancement to this program, called "Clean Compounds," is being instituted in February 2023 to further document compliance with Paragraph 45. "Clean Compounds" will require, among other things, that development staff photograph the

waste yards and compounds towards the end of the workday to document their cleanliness.

Broader efforts to maintain clean developments on an ongoing basis: Even though garbage is collected and stored once daily, trash generated between the last collection and the next may cause the grounds and premises to become unsightly. In the Monitor's view, Paragraph 45 implicitly requires that the grounds and premises be maintained in a clean condition on an ongoing basis. The challenge has been how to measure compliance with this requirement, given that it applies portfolio-wide on a daily basis.

To solve this problem (as reported in previous Monitor Quarterly Reports), the Monitor and the WMD collaborated in 2021 on the development of a Scorecard (formerly called Waste Management Measurement App, or "WAMMA") that rates waste and cleanliness conditions throughout each development on a monthly basis. The scorecard is a mobile app that an inspector can use to record observations and photos of waste and cleanliness conditions, grading them from 1 to 5, with 5 being an excellent score, and 1 reflecting seriously substandard conditions. In addition, the scoring system weighs the exterior and interior components of each development in accordance with their relative importance as follows:

Exterior components – 50%

- Lawn/grassy areas – 10%
- Curbside pickup sites – 7%
- Walkways – 7.5%
- Short Term Storage – 5%
- Waste Yard/Exterior Storage – 5%
- Outside Main Entranceways – 7.5%
- Roof – 8%

Interior Components – 50%

- Lobbies/Mall area – 10%
- Mailroom – 7.5%
- Elevators – 5%
- Hallways – 12.5%
- Stairwells – 10%
- Compactor Room/Machine Rooms – 2.5%
- Basement – 2.5%

In 2021 and 2022, the Monitor team conducted these Scorecard inspections. WMD is now working with NYCHA's IT team to build SCORECARD 2.0 with a Maximo interface component that will automatically generate work orders from the inspections. Once that is done, the inspections will be conducted by an as-yet-undetermined neutral third party within NYCHA. Since inception of the program, the results of the inspections have been shared with Borough Vice Presidents, Operations Administrators, Neighborhood Administrators, and development staff, who can see where they are doing well and where improvement is needed.

The inspection program has had a positive impact – since it began, waste and cleanliness conditions throughout the portfolio have been gradually improving. In



December 2022, the average rating for the 15 submissions that month was 3.35, a slight decrease from November, where the average of the 40 submissions was 3.44, but still a positive number, as any score above 3 reflects above-average conditions. In addition, ongoing inspections by the Monitor team at problematic NYCHA sites have seen marked improvement in conditions in many of those sites. There are still developments and buildings that are problematic in terms of waste and cleanliness conditions, but the overall picture is positive and steadily improving.

WMD personnel meet annually on-site with property management staff at all 131 development consolidations to review all aspects of waste infrastructure and waste handling equipment/tools that affect the conditions at their developments, addressing all operational issues and authorizing additional bulk tickets where needed. WMD also maintains communication with DSNY, which assists NYCHA in identifying unkempt sites and equipment that needs repair or replacement. Likewise, WMD communicates with NYCHA's privately contracted bulk vendors on an ongoing basis to report when a development seems to be struggling to maintain a clean waste yard.

An aggressive program of capital improvements is now underway which will greatly increase WMD's capacity to deliver proper waste management services to NYCHA residents. Waste yard redesigns are being implemented throughout the portfolio, as are interior compactor replacements. Newer, more efficient hydraulic auger-type compactors (pictured below) can easily handle both refuse and bulk, reducing the time needed to compact trash and eliminating the need for an exterior compactor and bulk container at developments with smaller waste yard footprints. Improved compactor room features will include new rollers, LED lighting, epoxy floors and partial epoxy-coated walls (for easier cleaning than painted walls), better drains and cleanout baskets reducing clogs, and other modern equipment to facilitate waste collection and disposal. Modern "Smart Bins" are being installed at strategic locations along the perimeter of certain developments to accommodate DSNY's rollout of NYC's Organics Program. A state-of-the-art pneumatic waste collection and transport system is being installed to improve waste handling at Polo Grounds. Other waste management capital improvements are scheduled for implementation as well.



*Auger-Type Refuse and Bulk Compactor*

In sum, NYCHA has been complying with its waste management obligations under Paragraph 45 of the Agreement and is improving its ongoing waste management efforts overall portfolio wide. This is a major accomplishment for NYCHA. We look

forward to continued improvement in the waste management and cleanliness conditions throughout the NYCHA portfolio.