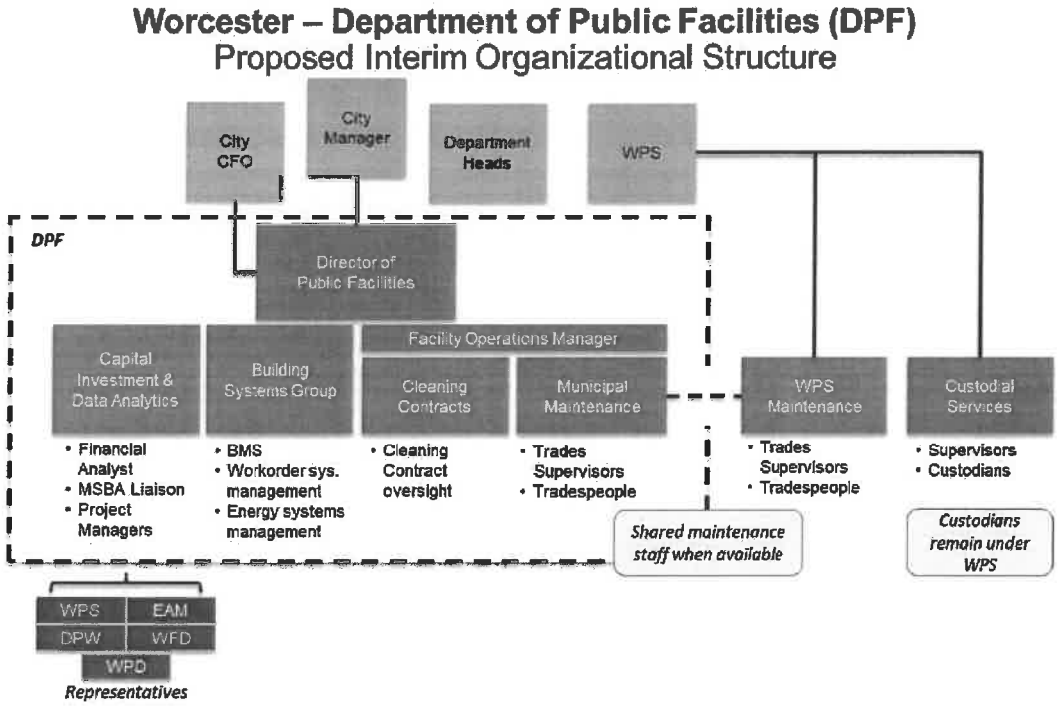
The Worcester Public Schools Administration continues to work with the City Manager and City Administration and their consultant, The Ripples Group, to explore the feasibility of combining facilities maintenance functions between the City and School Departments. Attached is the September 2019 Report from the Ripples Group and City Manager as presented to the City Council.

In summary, the City Manager intends to create a Department of Sustainability and Resilience in the FY21 City of Worcester Budget and begin the consolidate city-side facilities operations. The proposed interim public buildings structure as contained on page 34 of The Ripples Group Report, with WPS Administration input and feedback, illustrates the following:



This interim structure would have WPS skilled trades staff and City of Worcester (COW) skilled trades staff be shared as needed and as available but would remain separate under the WPS and COW, respectively. All custodial services would remain solely under the WPS.

An important element of the report's recommendation (on page 36) is to develop a citywide capital investment prioritization scheme and management process. This coordination should assist the allocation of funds to address the deferred mainteance in both school and public buildings in the city.

The WPS Administration will continue to collaborate with the City Administration and The Ripples Group in a phased approach that allows for shared services and coordinated support of school and public building maintenance within the city.

Edward M. Augustus, Jr.
City Manager

CITY OF WORCESTER

cm2019oct08044920 Attachment for Item # 9.27 A

October 15, 2019

TO THE WORCESTER CITY COUNCIL

COUNCILORS:

The attached communication relative to the current state of public facility management operations, as received from John Odell, Director of Energy and Asset Management, and forwarded for the information of your Honorable Body.

This report, prepared by the Ripples Group, is Phase 1 of the project and includes recommendations concerning a future-state facility management model to enhance customer service, improve operational efficiency, and increase scalability. The report recommends an eventual full consolidation of both municipal and school district facilities, using a multi-step phased approach, in order to address current facility management challenges.

Phase 2 and 3 of the project, for which we plan to again engage the Ripples Group, will include guidance and assistance for the following:

Phase 2:

a) Refinement and Finalization of the Proposed Facilities Consolidation Approach.

b) Strategy Development and Execution of the Stakeholder Outreach and Implementation.

c) Implementation Support for the City (excluding the Worcester Public Schools), including establishment of the Department of Public Facilities.

Phase 3:

a) The city will seek the assistance of the consultant to propose a design and roadmap for a new Department of Sustainability & Resilience.

b) The creation of these new departments is proposed for fiscal year 2021.

Respectfully submitted,

Edward M. Augustus, Jr.
City Manager

CITY OF WORCESTER, MASSACHUSETTS

Department of Administration and Finance
Energy and Asset Management

Thomas F. Zidelis
Chief Financial Officer

John W. Odell
Director, EAM

To: Edward M. Augustus, Jr., City Manager

From: John W. Odell, Director of Energy & Asset Management

Date: September 12, 2019

Re: Status of the Facilities Management Consolidation Project

Attached please find the **Phase 1** report[1] from the city's consultant regarding their comprehensive study examining the current state of public facility management operations with recommendations regarding a future-state facility management model to enhance customer service, improve operational efficiency, and increase scalability.

The report recommends an eventual full consolidation of both municipal and school district facilities, using a multi-step phased approach, in order to address current facility management challenges.

Phase 2 and 3 of the project, for which we plan to again engage the Ripples Group, will include guidance and assistance for the following:

Phase 2:

a) Refinement and Finalization of the Proposed Facilities Consolidation Approach

b) Strategy Development and Execution of the Stakeholder Outreach and Implementation

c) Implementation Support for the City (excluding the Worcester Public Schools), including establishment of the Department of Public Facilities[2]

Phase 3:

In conjunction with the ongoing Green Worcester[3] planning efforts, the city will also be exploring internal resource reorganization to align with the expected new policies, goals, and priority actions coming in the spring of 2020 as a result of the Green Worcester work and other, related internal priorities. Therefore, the city will be seeking the

assistance of the consultant to propose a design and a roadmap for a new Department of Sustainability & Resilience.

The creation of these new departments is proposed for fiscal year 2021.

Thank you for your time and consideration.

Sincerely,

John W. Odell

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[1] Worcester Municipal and School District: Consolidation Feasibility Study Report. May 21, 2019. The Ripples Group.

[2] The decision to exclude the WPS from Phase 2 at present is based on the understanding that the WPS already has a centralized facilities department, whereas the City does not. Therefore, the city will first develop a plan and execute consolidation of management of city facilities and then, once completed, engage with the WPS to develop and execute a potential merger of all facilities management.

[3] www.worcesterma.gov/GreenWorcester

WORCESTER MUNICIPAL AND SCHOOL DISTRICT CONSOLIDATION FEASIBILITY STUDY REPORT

The Ripples Group

May 21, 2019

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Table of Contents

Acknowledgments

We would like to thank the City of Worcester for giving us the opportunity to carry out this important project. We are grateful to the Worcester City Leadership, especially City Manager, Edward M. Augustus Jr. and our Project Manager, John Odell (EAM Director), for the open discussions and access to data, documents, and staff. The Worcester Leadership welcomed this study as an opportunity to improve operational efficiency and enhance customer service. We are thankful for their unwavering collaboration.

We would also like to express our gratitude to the following City executives and professionals who have been guiding and supporting our work:

Department	Subject Matter Expert
Worcester Public Schools	• Maureen F. Binienda, Worcester Public Schools Superintendent • Brian Allen, CFO & COO • Paul Comerford, Director of Facilities • Tom Barrett, Building Coordinator • Jake Cabrera, Energy Manager
Department of Public Works	• Matthew Labovites, Associate Commissioner of Operations • Russell Adams, Associate Commissioner of Engineering and Architectural Services
Worcester Fire Department	• Martin Dyer, Deputy Chief • Sean O'Neil, Plant Engineer
Worcester Police Department	• Lt. Gary Quitadamo, Fleet & Facilities Manager • Mark Giangregorio, Plant Engineer
Administration & Finance Department	• Thomas Zidelis, CFO • Erin Arvizu, Assistant Treasurer

Executive Summary

The Ripples Group has been engaged by the City of Worcester starting in late February of 2018 to assess the current state of Worcester public facility management operations and to make recommendations regarding the future state facility management model including the potential organizational, operational, and technological improvements to enhance customer service, improve operational efficiency, and increase scalability.

From late February 2018 to July 2018, The Ripples Group conducted an in-depth, fact-driven facilities management consolidation study for the City of Worcester, utilizing the available data, expert interviews, document reviews, site visits, resource allocation models, benchmarking, and customer satisfaction surveys.

Based on our findings, the major facility management challenges the City is facing can be summarized as:

1. Lack of a unified vision for Worcester City public building facility management, resulting in limited effectiveness;
2. Lack of an umbrella organization responsible for all key facility management-level decisions with a city-wide view of needs;
3. Lack of a prioritization scheme for capital improvement and deferred maintenance management across all City public buildings, leading to siloed investment decisions;
4. Inconsistency of building management and work order systems availability across all buildings, limiting managerial visibility.

To address the challenges mentioned above, we provide the following recommendations for the City of Worcester regarding facilities management and consolidation.

Recommendations

Recommended Organizational Changes

- Establish a Facility Management vision for the City.
- Form a Department of Public Facilities, through a phased approach, with representatives from all stakeholder groups and develop Key Performance Metrics.
- Enable collaboration across facility management stakeholders.
- Close staffing gaps for custodial and tradesmen teams to cover the needs of all 85 occupied buildings.
- Start developing an outreach campaign to communicate potential upcoming changes to internal and external stakeholders.

Recommended System Related Changes

- Implement building management and work order management systems across the facilities management operation, likely leveraging existing systems as mentioned above.
- Implement supply/inventory management system.

Recommended Process Related Changes

- Develop a capital investment prioritization scheme and management process.
- Develop Cleaning and Maintenance Standards and field periodic online customer satisfaction surveys to measure progress.
- Implement a Facilities Management Dashboard.
- Establish consistent annual performance reviews for tradesmen and hired custodians.
- Prioritize facility management training and a Continuous Quality Improvement (CQI) process.

Introduction

The second most populous city in Massachusetts with 180,000 residents, the City of Worcester operates with four overarching goals:

- Creating a vibrant, thriving city,
- Building strong neighborhoods,
- Maintaining a sound fiscal government, and
- Providing opportunities for all.

The 30 municipal and 55 public-school buildings that the City currently occupies play a key role every day in supporting these goals. To mention a few examples, Worcester's facilities enable education through its schools, house its public safety resources, contain essential utilities services like DPW fleets, and serves as the focal point for the City engagement through City Hall and other public access areas. The adequacy of facility management for the five million gross square footage in these buildings is closely correlated with the City's ability to maintain essential functions and ultimately fulfill its goals.

Methodology

This facility management assessment project was overseen by Mr. John Odell, the City's Energy and Asset Management Director. The scope of the project included five departments: Energy & Asset Management (EAM), Department of Public Works (DPW), Worcester Fire Department (WFD), Worcester Police Department (WPD), and Worcester Public School (WPS). We placed particular focus on three aspects of facility management:

1. Capital Planning – Budgeted capital expenditures, grant and MSBA funded expenditures
2. Maintenance – Ongoing preventive and deferred management of maintenance activity
3. Custodial and Cleaning services -Day-to-day cleaning and support activities

The key research questions included:

- How does the existing facility management operations structure support the critical functions of each department? What are the critical factors that define facility quality for each department?
- What are the major challenges the City is facing regarding facility management? Which challenges are shared across departments?
- How does the City utilize economies of scale in procurement and management of public facilities?
- How is capital planning managed? How are resource trade-offs considered and communicated?
- What are the current facility management processes and technology in use by department?
- How are resources deployed and what processes and standards are used for oversight?
- Based on these findings, what are the potential areas for improved cost, quality, and efficiency of maintenance operations? What options exist for consolidation and how could the management processes be improved?

To answer these questions pragmatically, our team has:

- Interviewed the City Manager, Edward M. Augustus Jr. and WPS Superintendent, Maureen F. Binienda, to solicit their vision
- Interviewed Mr. John Odell to solidify our understanding of the project objectives
- Interviewed the key leadership and facility management subject matter experts in-person by department
- Reviewed relevant facility management industry best practices and standards
- Reviewed the City's relevant organizational charts, budgets, vendor contracts, and prior reports
- Collected and analyzed financial and operational data
- Conducted site visits to selected buildings by department as recommended by department managerial staff. These included multiple schools, the DPW East Worcester Street campus, the police station, and numerous fire stations
- Developed and conducted two stakeholder surveys (Worcester staff and public building users) to quantify the level of occupant and customer satisfaction with the City's public buildings
- Built a detailed spreadsheet-based building-level resource allocation model
- Interviewed facilities managers from other cities and industries to inform potential challenges and success factors to making major changes
- Benchmarked the City's facility management practices against comparable cities and organizations in Massachusetts
- Identified industry benchmarks for comparison of operational and cost effectiveness of maintenance operations and capital planning
- Developed and evaluated discrete management consolidation scenarios and quantified potential cost savings
- Reviewed opportunities to enhance technology utilization
- Reviewed ADA self-assessment results
- Vetted our recommendations with John Odell (Project Manager) and key stakeholders and incorporated their feedback

For the purposes of this report, Facility Management is defined as the continuum of activities including:

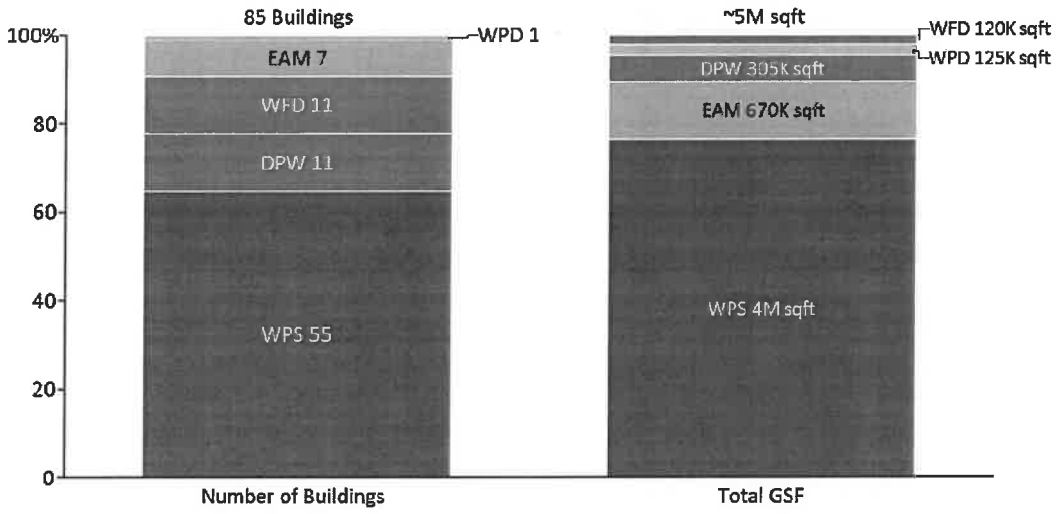
  - Facility capital maintenance (interior & exterior)
  - Facility cleaning and non-capital maintenance
  - Building work order management and tracking
  - Snow removal
  - Supplies management for cleaning and maintenance

Please note that the critical strategic question whether the City has the right number of public buildings (e.g. fire stations, public schools) as a function of projected population growth was outside our scope. Similarly, identifying building-level energy efficiency opportunities was excluded from this study as it was the focus of a City-wide study by Honeywell.

Study Findings

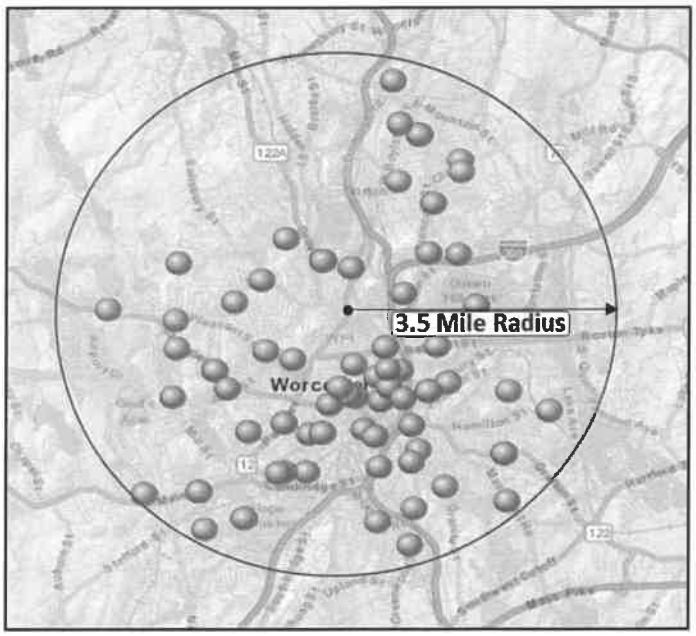
Overall Facilities Landscape and Facility Management Budget

- **The City of Worcester operates 30 occupied municipal and 55 public school buildings, spanning 5M gross square feet (GSF). The following chart illustrates the number of buildings and area by department:**

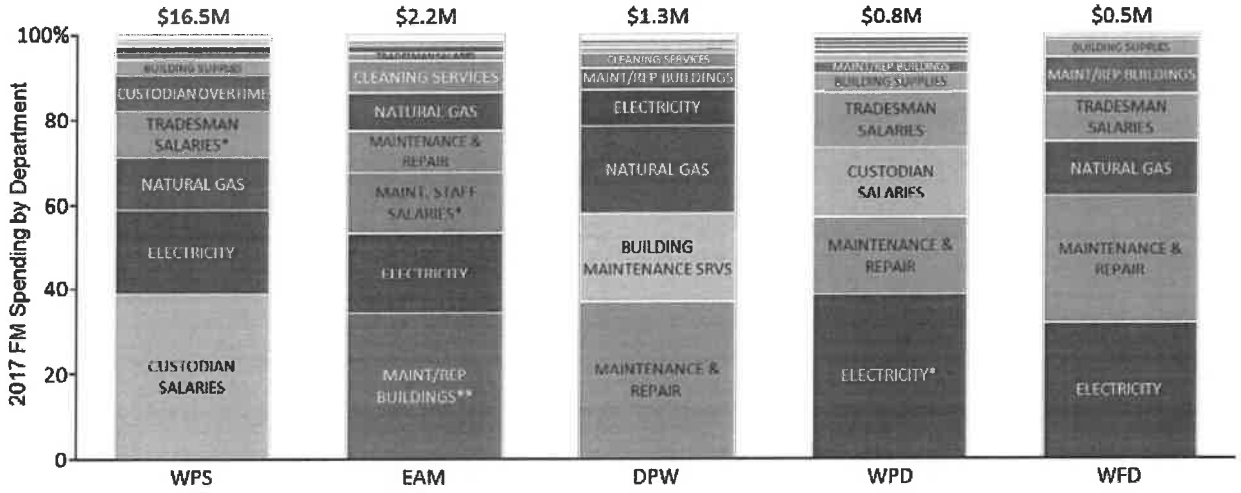


Source: RFR Attachment A, Ripples Analysis

- **All 85 buildings are within a 3.5-mile radius as depicted below:**

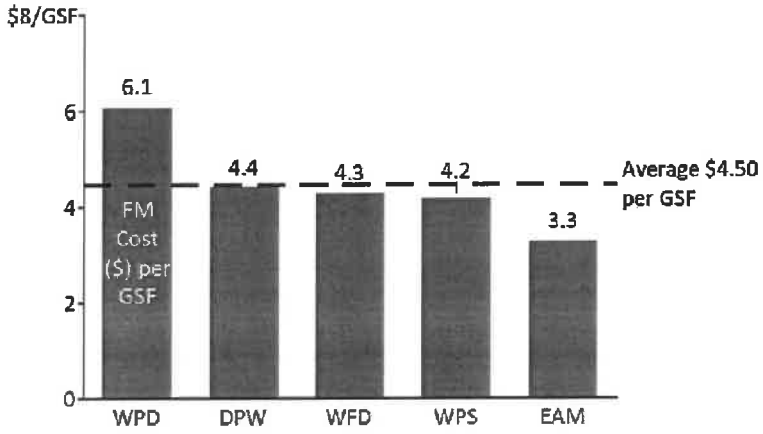


- Aggregate annual facility management operating expenses are estimated to be ~$21M for FY2017 (or ~3% of the City's annual budget of ~$610M) as broken down by department and key expenditure area below:



Source: Worcester Financial Data, Ripples Analysis, does not include management positions
*Estimated from FY17 Worcester Budget
**Includes Honeywell Implementation costs

- Based on the estimated operating expenses stated above, the average 2017 facilities management cost per GSF is $4.50. This value is 10% below the average industry estimate of ~$5.00. The estimated cost per department is depicted below:

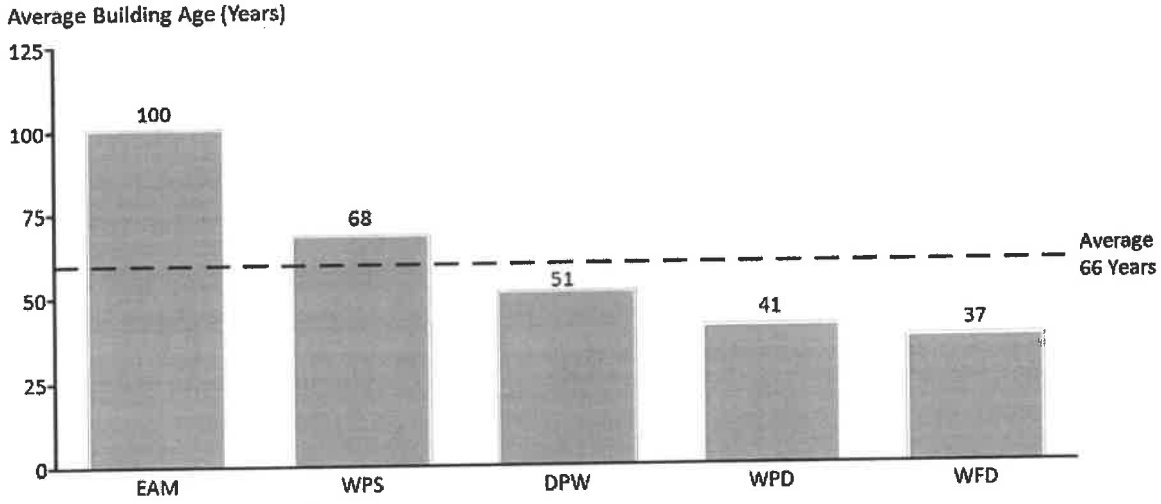


Source: Worcester Financial Data, Ripples Analysis
Does not include management positions

- The City's public buildings are funded by five different sources:

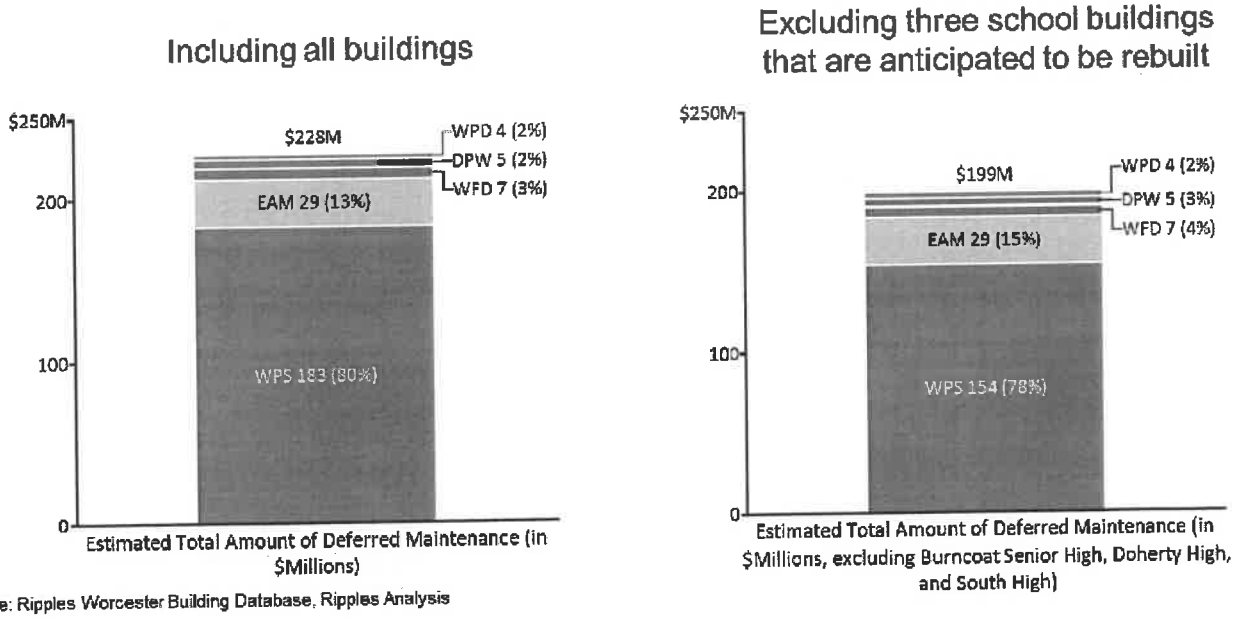
1. Tax levy for most departments
2. Enterprise budget for four revenue-generating DPW buildings (e.g. water and sewer buildings)
3. Allocations from the City's capital improvement budget for all departments
4. Federal and state grants
5. Massachusetts School Building Authority (MSBA) funding for public school construction and expansion

- The average age of Worcester public buildings is relatively high at 66 years as illustrated below by department. Based on a study the National Center for Education Statistics conducted for the U.S. Department of Education in 2012–13, the average age of public school buildings in the U.S. is 44 years. Using the school buildings as a proxy for the City, (representing 65% of the buildings covered in this study) Worcester's average building age is significantly higher than other public-school buildings.



Source: RFR Attachment A, Ripples Analysis

- Based on our current estimates, the total accumulated deferred maintenance for all the 85 buildings is about ~$230M. However, three school buildings, Burncoat Senior High, Doherty High, and South High are anticipated to be rebuilt in the upcoming years. If these three buildings were to be excluded, the total estimated deferred maintenance for the remaining buildings would be ~$200M. The following graph captures the deferred maintenance in dollar terms by department:



Source: Ripples Worcester Building Database, Ripples Analysis

We should note that while the City is endowed with historic and impressive architecture and state-of-the-art facilities such as the DCU, the impact of deferred maintenance needs also became apparent on our site visits. The table below summarizes the number of buildings that have deferred maintenance by department (e.g. WFD has three buildings that have deferred roof maintenance).

Number of buildings with deferred maintenance						
Deferred Maintenance Type	WPS 55 buildings	DPW 11 buildings	EAM 7 buildings	WPD 1 building	WFD 11 buildings	Total Count of Buildings
Roof	40	5	2	1	3	51
HVAC/ Chiller	44		4	1	1	50
Boiler	26	4	2		3	35
Walls, Flooring, Stairs, Basement, & Plumbing	43	6	4	1	6	60
Windows	19	4	1		1	25
Fire Alarm Replacement	38		1			39
Paint	53		2		8	63
Building Modulars	2					2
Fire Protection Sprinklers	39					39
Indoor Air Quality	21			1		22
Asbestos Presence	37				5	42
Lead Paint Presence	22					22
Pest Management	28				11	39
Other	42	1	4	1	6	54

Many of these issues directly impact the usability and safety of existing facilities. We provide below some of the photographs we took during our site visits.

Facility Management Organization Across Departments

We had the opportunity to meet all Worcester facility management subject matter experts, from strategic managers to tactical leaders. Without exception, they exhibit unquestionable pride, knowledge, and ownership of their buildings.

- The City's facility management operations are currently department-based. All hiring is conducted at the department level.
- Two crucial functions, however, have already been consolidated over the last few years:
  - Energy management for all departments and their buildings, with the exception of billing, is overseen by EAM, and
  - Supplies contract and vendor management, except life-cycle management, is operated by the City's Purchasing Department.

- Within the respective departments, the extent of in-house resources for ongoing facilities maintenance varies:
  - WPS has a dedicated facilities department with a staff of almost 200, including 155 custodians and 32 tradesmen. The breakdown of tradesmen by specialty is captured below:

Tradesman Specialty	Number of Tradesmen
Carpenter	8
Electrician	5
HVAC	4
Plumber	4
Steamfitter	3
Glazier	2
Coord Building & Grounds	1
Locksmith	1
Facilities Coordinator	1
Energy Management	1
CAD/Draftsman	1
Environmental Management Coordinator	1

  - WPD has a facility management team of five responsible for the Police Headquarters (only one building) and the WFD, with 11 buildings, has only one craftsman.

  - Almost every EAM and DPW building has its own facility management structure. In most cases, there is one designated person who oversees a building. For example, the facilities management of the DPW Administration building is overseen by the Sewer Operations Supervisor, while other DPW buildings are managed by another resource. This structure is similar in EAM too. DPW generally deploys DPW Laborers (e.g. Motor Equipment Operators) to address routine maintenance needs, while EAM utilizes a team of maintenance crew and a half-time tradesman. In most cases, both departments contract out cleaning services and other maintenance needs.

- Collaboration amongst departments as it pertains to facility management is limited due to a lack of shared facility management technology platforms and a mechanism for consistent, periodic communication and knowledge sharing.

Key Facilities Management Processes

We describe below our findings by key facility management activity:

- **Facility capital maintenance (interior & exterior):** Building envelope and interior maintenance is managed at the department level. Individual departments submit annual capital improvement budget requests to the City and invest in their own facilities depending on the amount approved by the City. MSBA-funded construction and improvements for public schools is coordinated by WPS and DPW's Engineering Team. Major DPW buildings (e.g. Headquarters) are not subject to the budgeting process described above as the maintenance needs for those buildings are nearly fully funded through the water and sewer enterprises.

- **Facility cleaning and non-capital maintenance**: As mentioned above, WPS and WPD employ their own custodial and tradesmen teams who are responsible for facility cleaning, minor repairs and routine maintenance. More complex repairs or facility systems-related work is typically outsourced. DPW, WFD, and EAM rely on internal resources for basic interior maintenance. EAM and DPW mostly contract out cleaning services. DPW, WFD, and EAM generally outsource maintenance work to contractors.

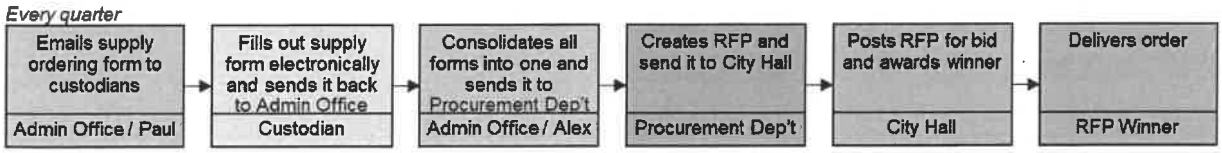
  At EAM, WPD, and WFD, the individual who has a request emails, calls, or texts various individuals (Plant Engineer, Facilities Manager, Custodian, Chief) who are involved in building maintenance from their department. In the case of EAM, all called-in requests are also verified in writing. At WPD, the individual who has a request might contact the custodian, the supervisor, or the fleet and facilities manager.

  Similarly, the person who has a request at DPW and WPS can call, email or text various individuals (Director of Facilities, Building Coordinator, Custodian, Division Director, Division Supervisor). Both departments also receive requests through their respective IT software system (Customer Service Request System for DPW and School Dude for WPS).

- **Building work order management and tracking:** Work orders are not always formally tracked and data on total number of work orders are not always available, such as the breakdown of requests by type, whether they are completed in-house, and by whom, which in return, limits opportunities to increase efficiency. While still working through full deployment and utilization, WPS leverages work order management technology (School Dude) to collect and track its maintenance needs. DPW relies on a Customer Service Request System for the same purpose. The other departments employ manual methods to track work orders and the resulting contractor response where applicable.

- **Snow removal**: DPW is responsible for snow removal from all public roads and DPW facilities with currently limited capacity to support expansion of snow removal activities. In most cases, WPS, WFD, WPD and EAM are responsible for their own parking lots, sidewalks, and stairs. The clearing of public school parking lots is assigned to WPS custodial staff. All departments have their own snow removal equipment with different resources.

- **Supplies management for cleaning and maintenance:** Supplies inventory management is consolidated at the City-level and managed by the Purchasing Department. In most cases, the City's open purchase orders are utilized to purchase supplies. As opposed to other departments, EAM cleaning contractors are responsible for ordering their own supplies. Although each department is slightly different in this aspect, a representative process flow for WPS is depicted below.

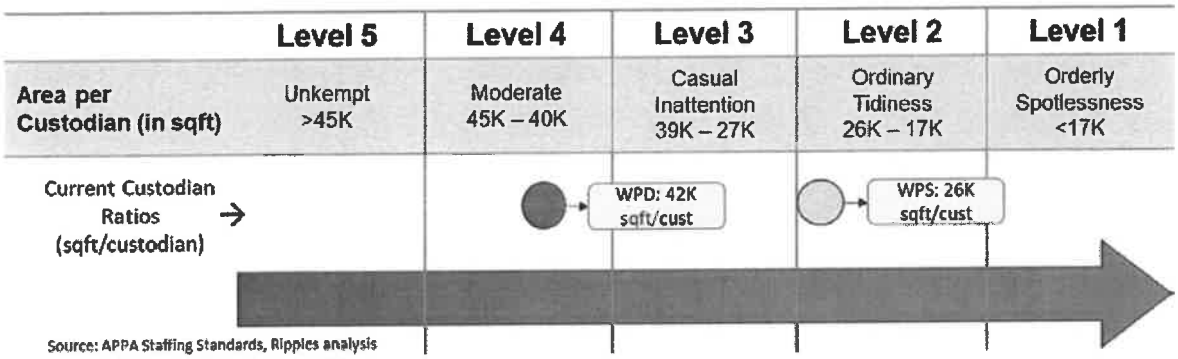


Currently, there is not a system-wide inventory tracking IT system in place. Such an IT system would provide valuable data to management and lead to an increase in overall efficiency. For instance, through a supply management system, the respective managers could decide whether one product is better than another substitute product or identify whether the cleaning staff are using the right type or amount of supplies.

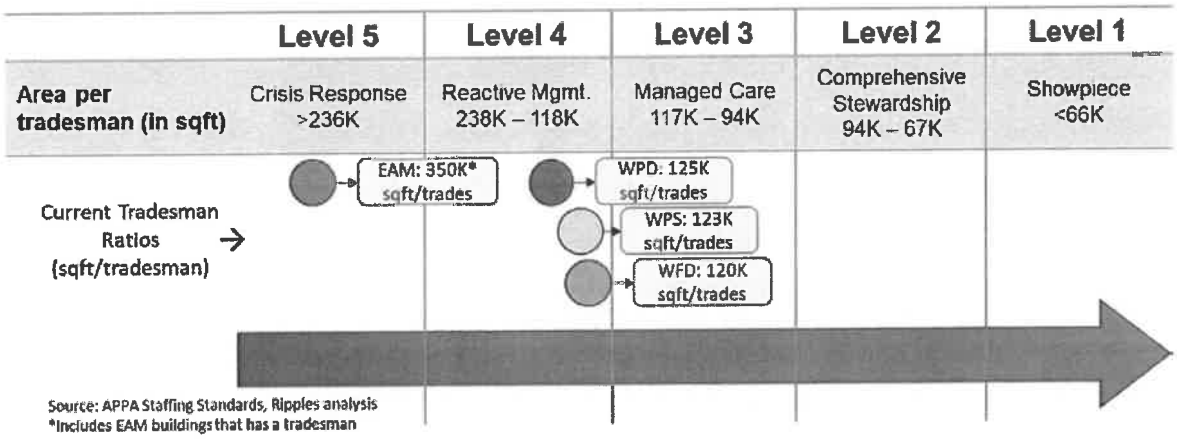
Comparison to APPA Standards

We benchmarked the current level of service achievable for departments with inhouse custodian and maintenance staff. To that end, we compared the average square footage per staff member to staffing standards from APPA, the leading organization for educational facility improvement. The level of service provided can be interpreted as the level of quality building occupants and users are receiving.

- Based on APPA standards and current Worcester custodial staffing per square foot, out of 5 possible levels (level 1 being the best), the average level of service provided to WPD is level 4 and level 2 for WPS. The other three departments outsource their cleaning services or maintain the cleanliness of their buildings through non-dedicated staff resources (e.g. WFD).



- Similarly, based on APPA standards and current Worcester tradesman staffing per square foot, out of 5 possible levels (level 1 being the best), the average level of service provided to EAM, WPS, WPD, and WFD is between level 5 and level 4. However, it is important to note that all departments supplement their maintenance staff by outsourcing work to qualified professionals when funding is available.



Building Occupant and User Perspective

While analyzing processes and interviewing key leadership is crucial for this study, incorporating the perspective of City employees and public users is just as important. To that end, the Ripples Group, developed and conducted two stakeholder facility surveys (Worcester staff and public building users) to assess the level of occupant and customer satisfaction with the City's public buildings.

The Worcester staff survey consisted of 3 respondent background questions, 17 ranking questions, and 1 open-ended feedback question. The public user survey was derived from a subset of the staff survey and only included 8 questions. Overall, we received 996 responses (782 staff, 214 user) . The breakdown of responses by department and public building is depicted in the table below:

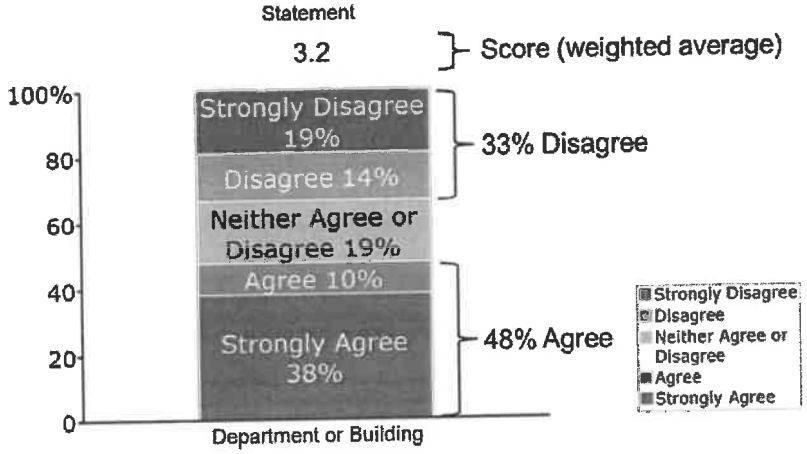
Worcester Facilities Staff Survey

Department	Number of Responses
Worcester Public Schools (WPS)	618
Energy and Asset Management (EAM)	79
Department of Public Works (DPW)	33
Worcester Police Department (WPD)	28
Worcester Fire Department (WFD)	24
Grand Total	**782**

Worcester Facilities Public User Survey

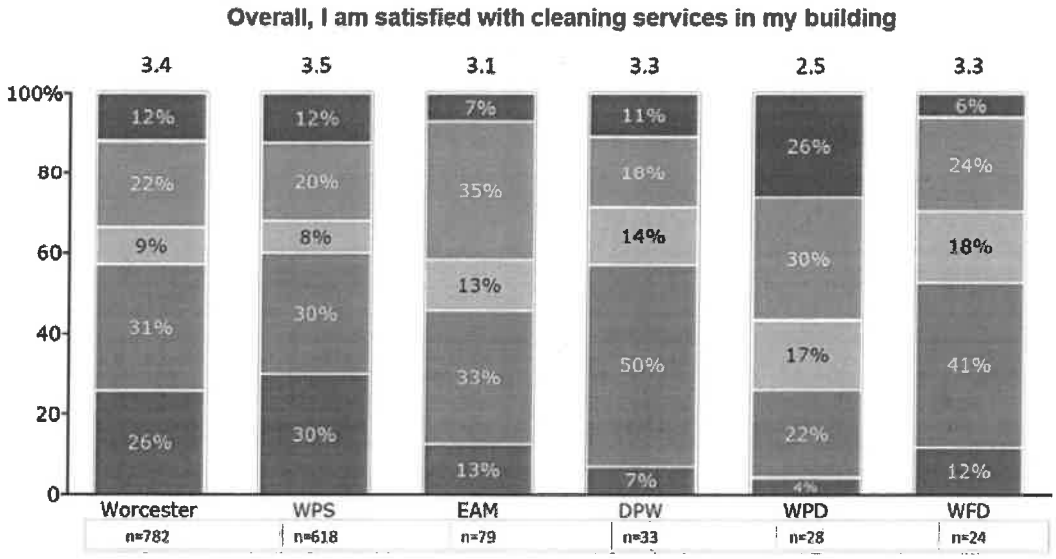
Public Building	Number of Responses
City Hall	47
Franklin Square Library (Salem St.)	49
Police HQ	41
Union Station	49
Worcester Senior Center	28
Grand Total	**214**

In the surveys, we asked each respondent to indicate their level of agreement with the statements provided, ranging from Strongly Agree to Strongly Disagree. We then weighted each response (5=Strongly Agree, 1=Strongly Disagree) to calculate the overall score for each statement. The chart below illustrates an example of how to read the charts that follow in this section:



Overall, 57% of Worcester staff respondents are satisfied with the cleaning services in their buildings. Although the satisfaction level is similar throughout most departments, WPD received the lowest satisfaction level regarding cleaning services. It is important to note that this should not be directly correlated with the performance of the cleaning staff but is related to the shortage of cleaning staff

resources at the WPD building. As explained previously, based on APPA standards and current WPD custodial staffing per square foot, out of 5 possible levels (level 1 being the best), WPD is at level 4:



For all departments, on average, roughly half of the comments regarding unsatisfactory cleanliness levels mention bathrooms. Respondents would like the bathrooms to be cleaned more often and kept in good shape:

> *"Staff bathrooms are consistently disgusting - limited amounts of toilet paper, dirty floors, some don't have trash cans, all have terrible and persistent odors as if they are never cleaned..." (WPS)*

> *"It would be nice if the bathrooms were cleaned more often and if filters were added to improve the small and air quality in there!" (EAM)*

For WPS only, there are mixed reviews on school custodian effectiveness. Some respondents are very satisfied with their custodians while others highlight room for improvement:

> *"Outstanding job done by a very limited group of hard working people, always see everyone going way above and beyond the set standards..." (WPS)*

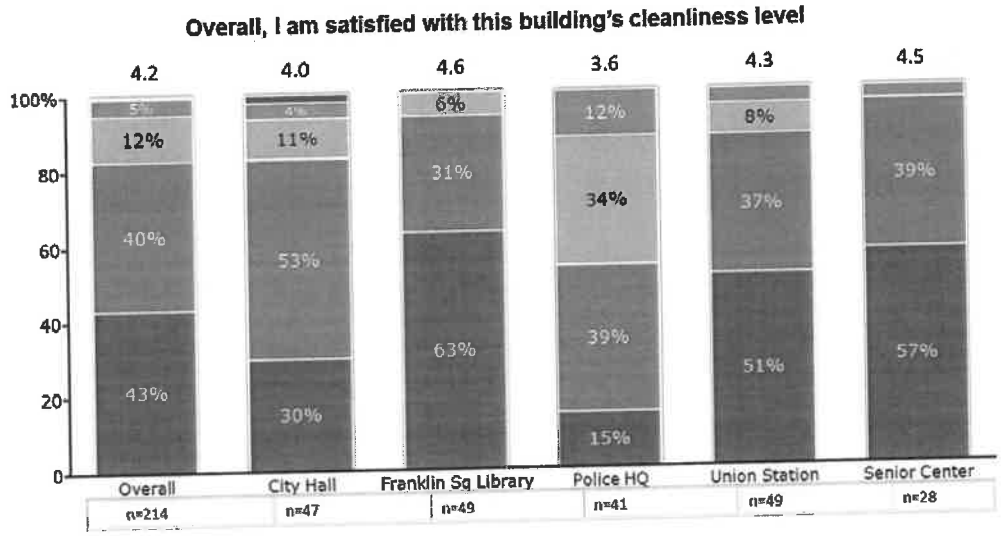
> ... while some voice concerns:

> *"The lack of effort to clean and maintain this building is a disgrace. Yes, the building is old but that does not mean we cannot keep toilet paper in the bathrooms and wipe them down daily. I have NEVER had my classroom swept - I do it myself..." (WPS)*

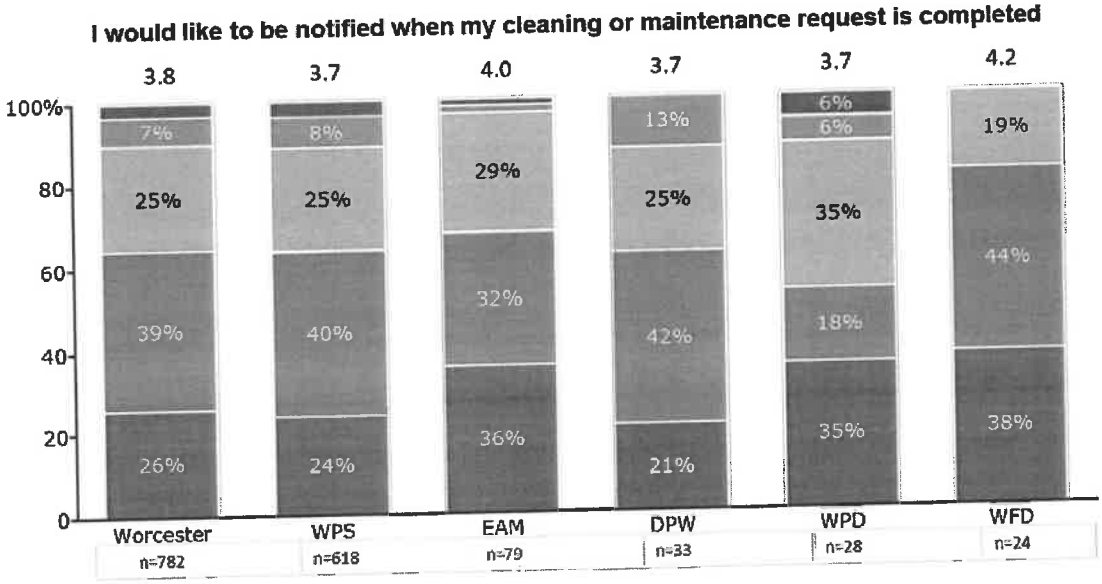
Similarly, for WPS only, a handful of schools seem to have been struggling with rodent issues.

> *"The mouse problem in our school has also been significant over the last two years. Teachers constantly have to clean off mouse poop from closets, desks, boxes stored, and many other things. I do not feel as though these things are healthy and could absolutely be causing health problems..." (WPS)*

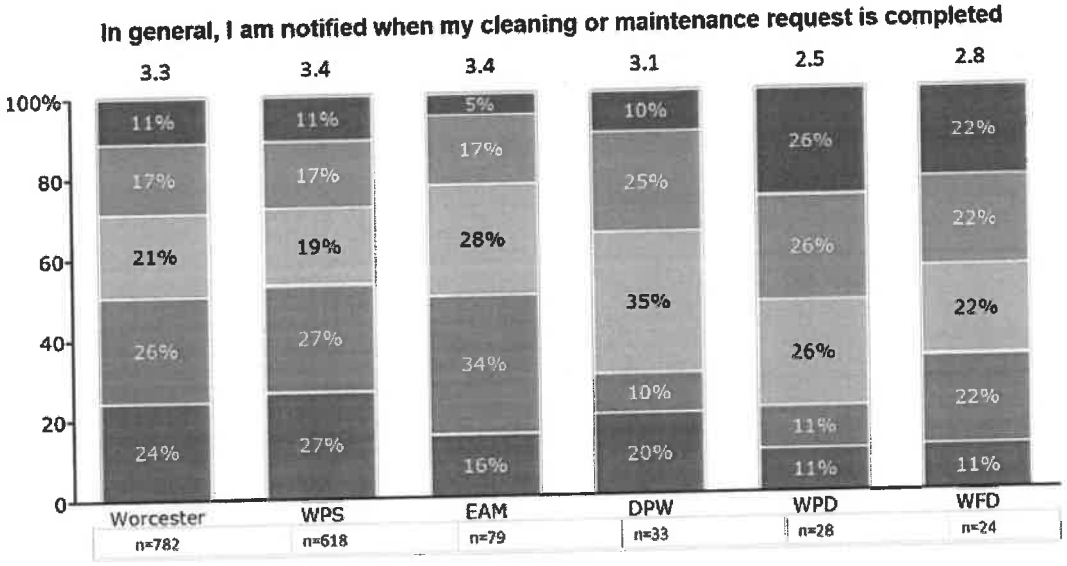
On the other hand, when the same question was posed to public users, over 80% of the respondents indicated that they were satisfied with the buildings' cleanliness levels:



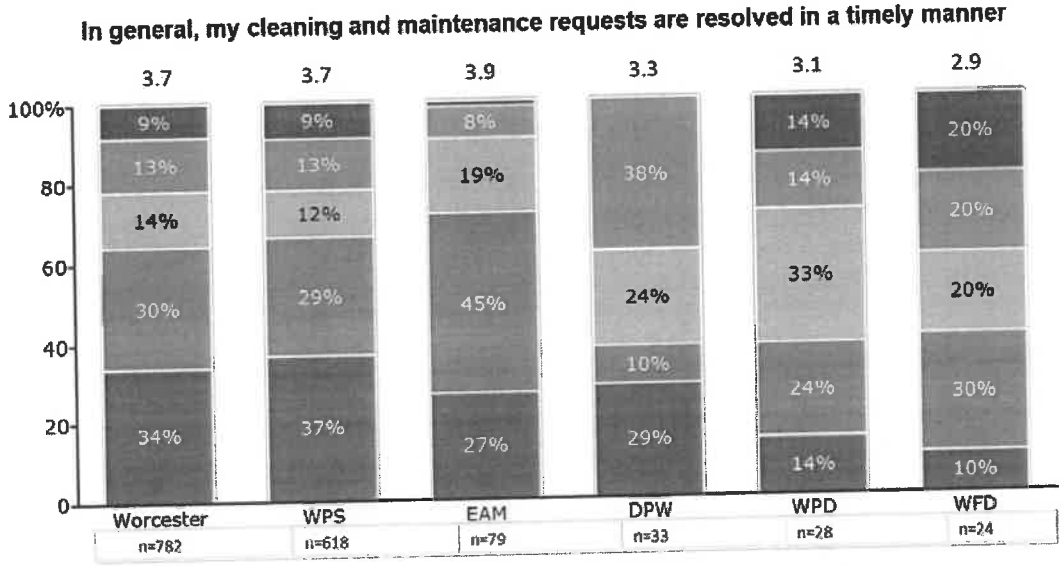
Shifting from cleanliness to service requests and overall timeliness, we then asked whether City employees would like to be notified when their request is completed. On average, 65% of the respondents indicate that they would. Specifically, WFD, indicated the highest interest with 82%:



However, due to the lack of an integrated City-wide work order request system half of City employees are not notified when their cleaning or maintenance request is completed:



When asked about the timeliness of cleaning and maintenance requests, on average, 64% of the City employee respondents were satisfied with the turnaround time. However, compared to WPS and EAM, DPW, WPD, and WFD indicated significantly lower satisfaction rates:

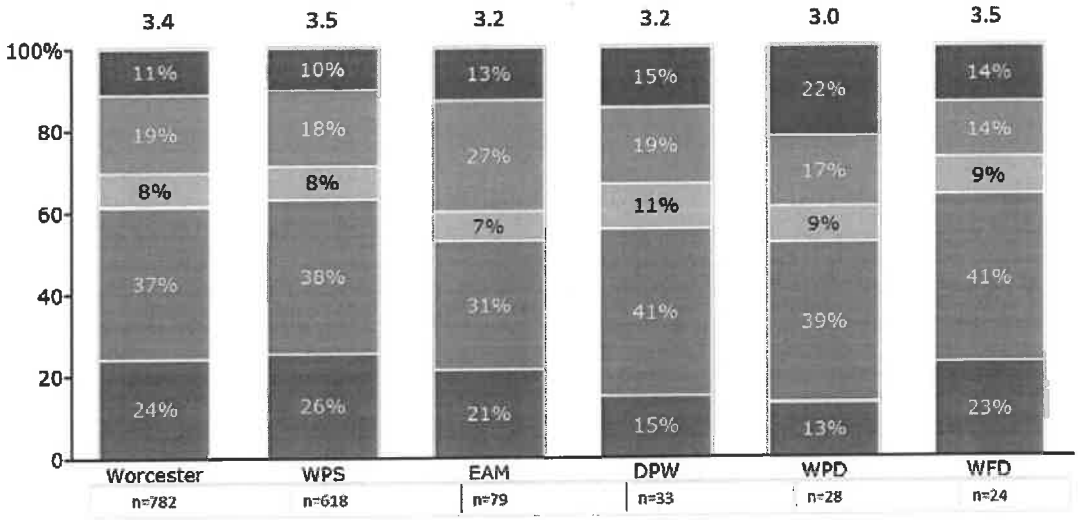


"It takes forever to get the simplest thing done, and when I am assigned to a new classroom, I have to reinvent the wheel. I have a white board that was not attached to the wall this year, simply because we do not have a smooth system for getting request filled." (WPS)

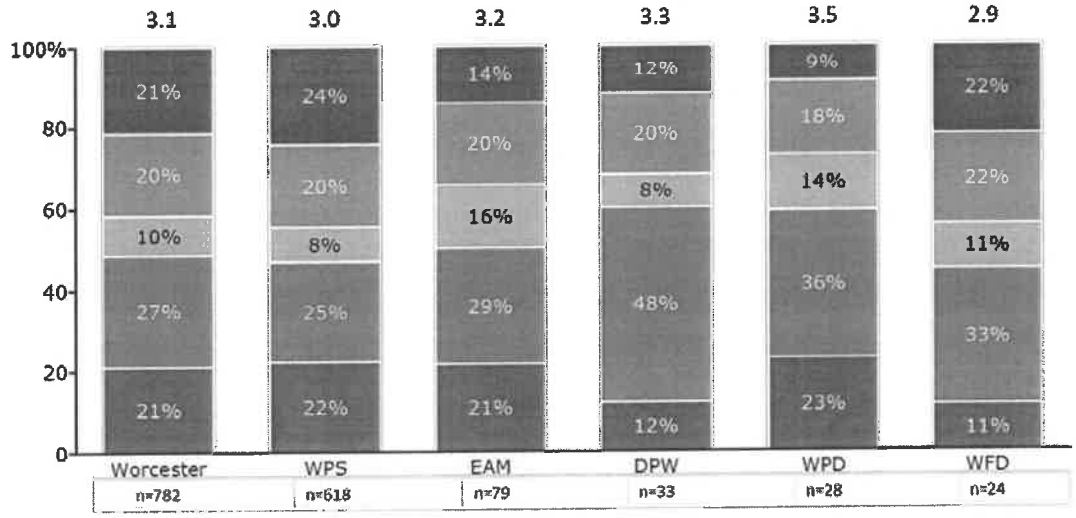
Besides cleanliness and request updates, adequate cooling, heating, and air quality were other factors affecting the City's overall satisfaction rate. In particular, based on the survey responses, the City seems to have done a better job with heating the buildings during the winter season compared to cooling

during the summer. On average, 61% agree that their building has adequate heating while only 48% indicated their building has adequate cooling. More detail is displayed in the charts below:

My building has adequate heating during the winter season



My building has adequate cooling during the summer season

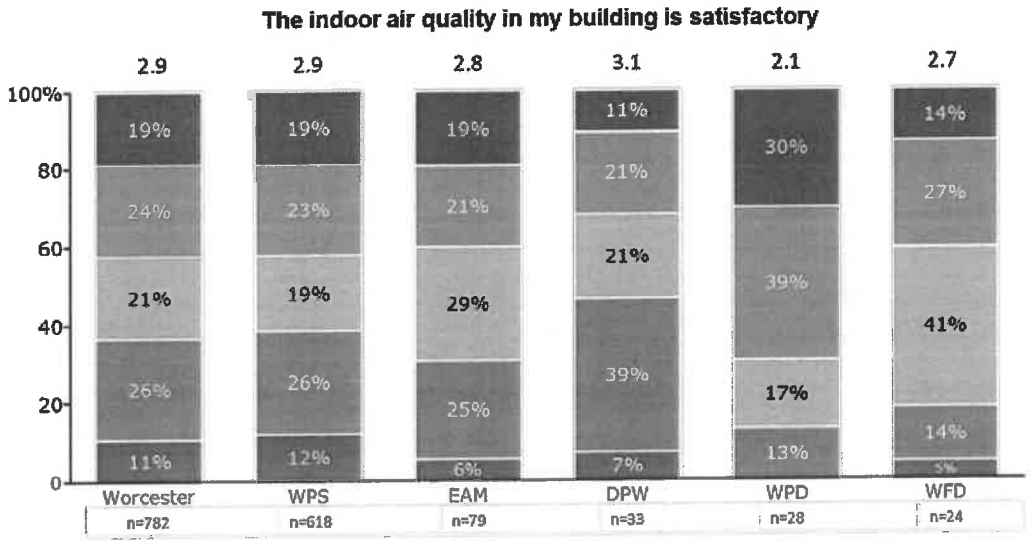


"The lack of AC makes our building an unbearable hotbox whenever the outside temperature is 75 degrees or above, which makes teaching and learning very difficult and nearly impossible as the temperature increases." (WPS)

"The heating is very erratic. In the winter and spring, the 4th floor frequently reaches temps as high as the 80's-90's and as low as the low 60's. It can make working on the 4th floor very uncomfortable." (DPW)

"More precise temperature in each section/room of the building. Usually it is either too hot or too cold in some parts of the building." (EAM)

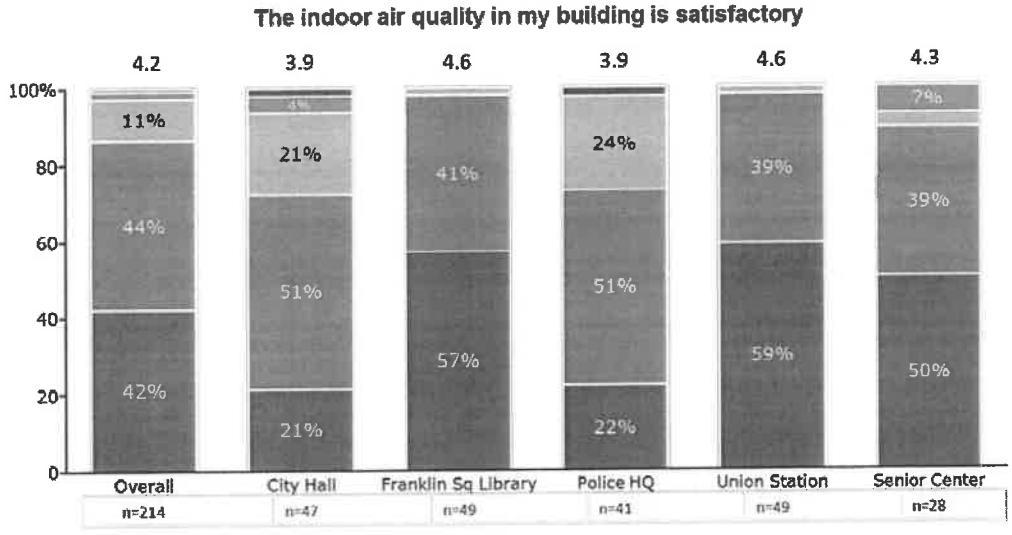
In regard to indoor air quality, although all departments expressed concern (one of the lowest scores in the survey), WPD and WFD had the lowest satisfaction rates. In particular, 69% of WPD staff do not believe the air quality in their building is satisfactory:



"The air quality is less than healthy. We have old, dusty vents, because of the age of the building, and are not being properly cleaned. There are many respiratory illnesses in our building, some chronic." (WPS)

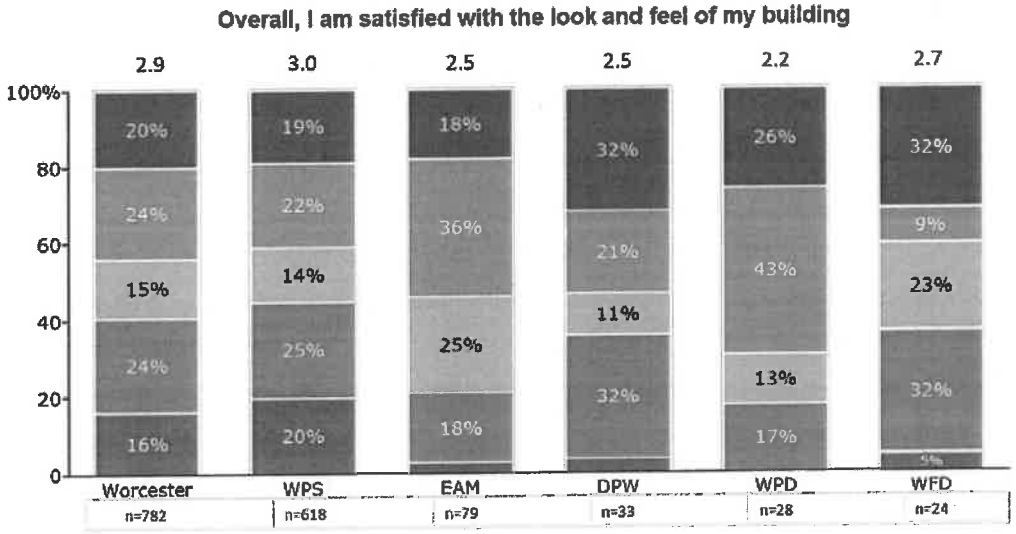
"There appear to be potential mold spores along numerous air vents throughout the Police department. I feel the air quality within the building, specifically stairwells are not maintained and could be dangerous for our health." (WPD)

When the same question regarding air quality was posed to the public users, on average, a staggering 86% of the respondents indicated that they are satisfied:



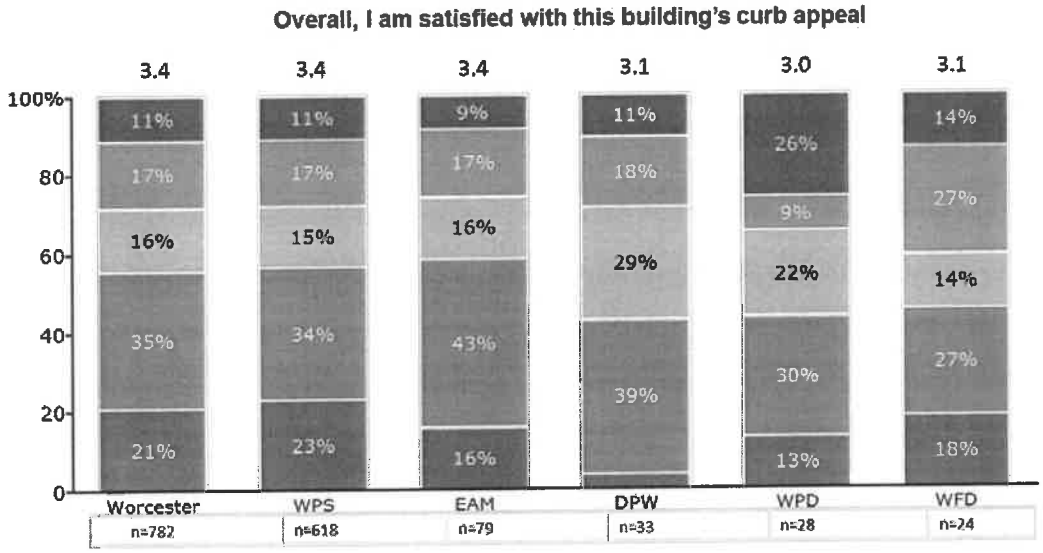
Our next set of questions focused on the general look and feel of the buildings, as well as the curb appeal. On average, 56% of Worcester City employees are satisfied with the curb appeal of their

buildings while only 40% is satisfied with the look and feel. Amongst all the departments, WPD is the department with the lowest look and feel satisfaction. However, EAM and DPW also received significantly lower scores compared to the City average:



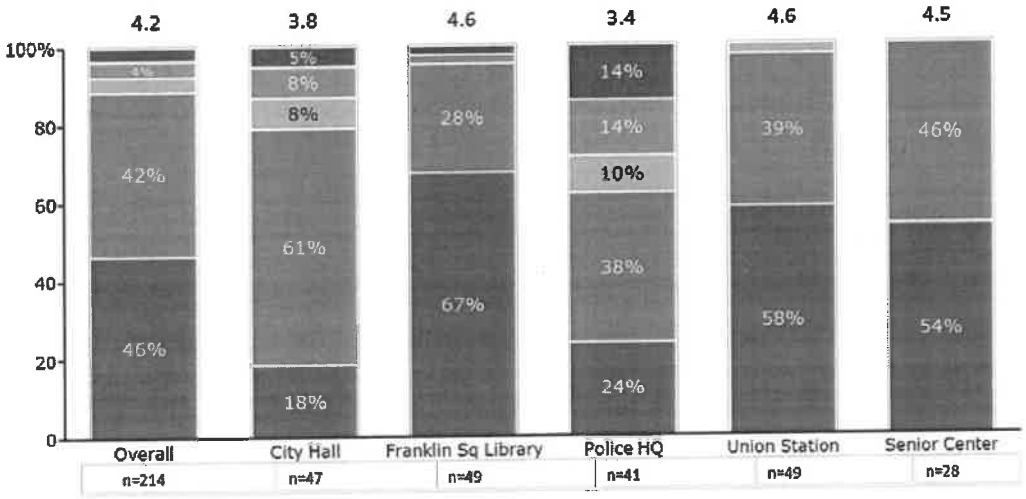
"I think the day to day maintenance is adequate (general cleaning, bathrooms, etc.) but the facilities are so old and outdated that the daily upkeep doesn't do much for the overall cleanliness feel. There are off-putting stains on the walls and in bathrooms, on carpets, and on upholstered furniture. Paint is chipped off in the stairwells and on windowsills, in some cases exposing mold. Tiles are broken and missing in the kitchen..." (DPW)

"Stairs are dangerous and creaky, floors creaky, carpet musty and in disrepair." (EAM)

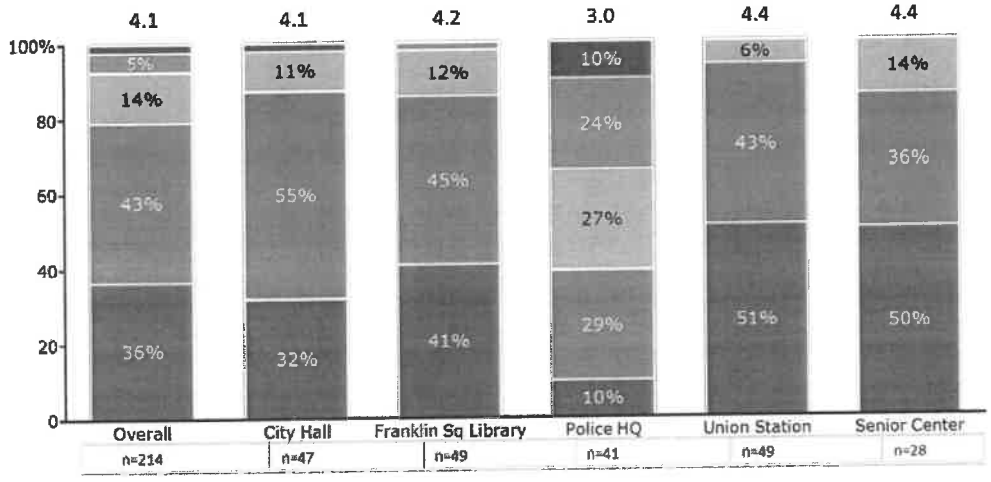


Consistent with previous responses, the public user perception is significantly higher for the same set of questions. On average, 84% of the public users are satisfied with the look and feel of the buildings they visit. Similarly, on average, 79% are satisfied with the curb appeal of the buildings:

Overall, I am satisfied with the look and feel of my building

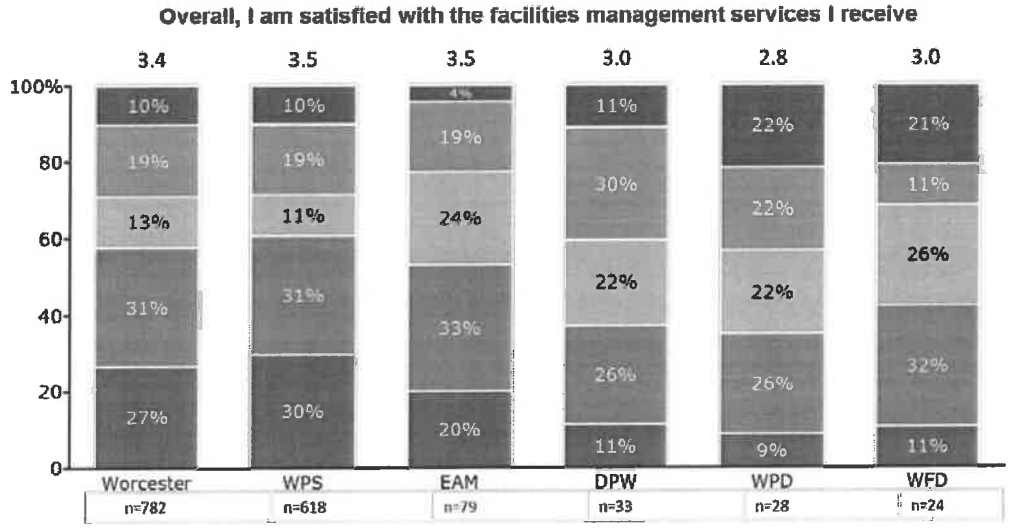


Overall, I am satisfied with this building's curb appeal

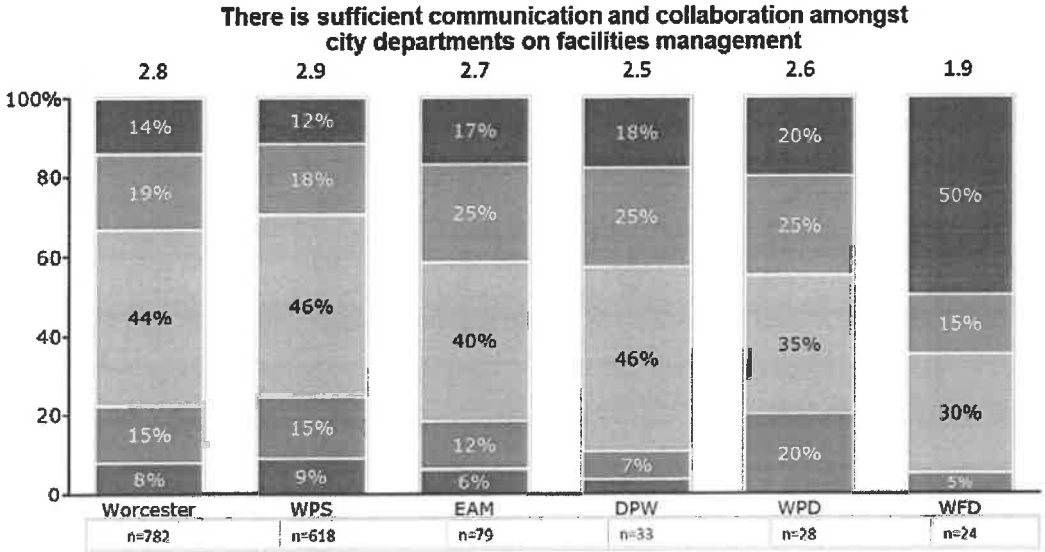


The final set of questions we asked Worcester City employees entailed overall management services, sufficient communication and collaboration, and whether the City has a clear vision on municipal facilities management.

Overall, 58% of the Worcester staff respondents are satisfied with the facilities management services they receive in their building. Compared to the overall rating the City received, DPW, WPD, WFD received significantly lower scores:

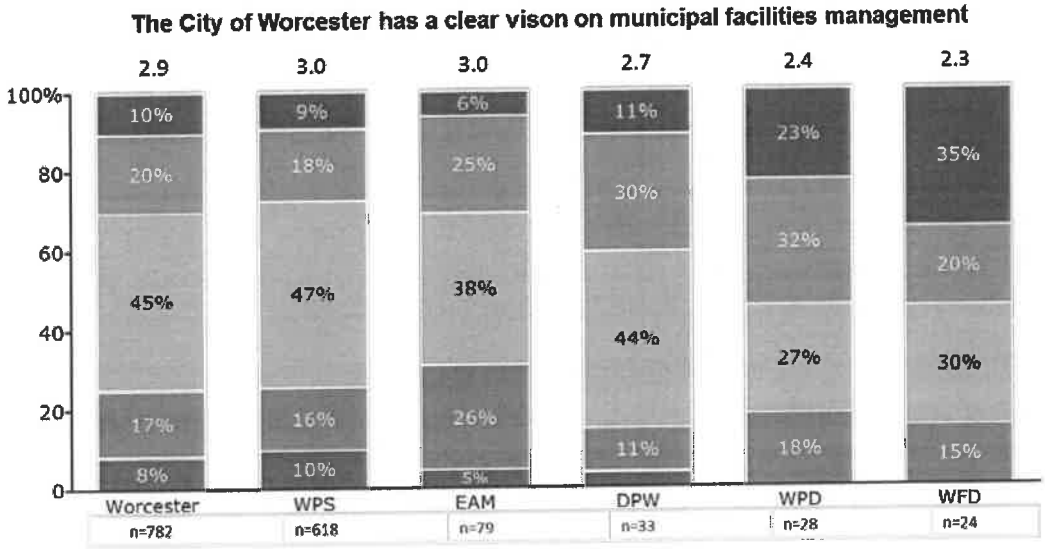


Compared to the City's overall score, sufficient communication and collaboration amongst City



departments on facilities management received the lowest score:

Whether the City has a clear vision on municipal facilities management received the second lowest score of the survey. In particular, WFD expressed strong disagreement:



In summary, The City of Worcester received a score of 3.4/5 from the staff survey. EAM and WPS received the highest departmental scores at 3.4/5 while WPD received the lowest at 3.0/5. On average, only 35% - 42% of WPD, DPW, and WFD respondents are satisfied with the level of facilities management they receive. The lowest scores of the survey were given to indoor air quality, satisfaction with the look and feel of the buildings, vision for Worcester facility management, and communication and collaboration amongst city departments.

In response to our open-ended questions for additional comments, respondents were vocal about their concerns regarding:

- Performance of some school custodial staff
- Cleanliness of bathrooms
- Rodent problem in some schools
- Long response times for requests
- HVAC and air quality in some buildings

On the other hand, the Worcester public user survey that captured five public buildings received significantly higher scores. On average, the public buildings received a score of 4.2/5.

Learnings from Benchmarking Efforts

While an introspective look is an indispensable starting point for any facility management assessment, it is equally important to incorporate perspectives from outside the City. To that end, we reached out to facility management experts at the Massachusetts Trial Court, Harvard University, City of Fall River, City of Quincy, City of Springfield, City of Englewood (Colorado), and reviewed multiple public facility consolidation reports in MA and NY. A high-level summary of our learnings is provided below:

- The current trend in public building facility management clearly favors consolidation and centralization: The Town of Natick, the Town of Lexington, the City of Quincy, the City of Springfield, and the Town of Fall River as well the MA Trial Court System (including 100 court houses) have all undertaken (and most completed) consolidation efforts;

- This momentum for consolidation is driven by cost-reduction efforts, as well as, the intention to improve customer service and scalability through a streamlined organizational structure and more effective decision-making;

- A consistent component of consolidation is the deployment of inter-connected building management and work order systems across the respective facility portfolios;

- Centralization of building facility management does not automatically imply that all facility management efforts are outsourced. For example, Harvard University, the MA Trial Court and most cities and towns mentioned above typically recruit and employ their own internal custodial and tradesmen team to maximize flexibility and enhance customer service. On the other hand, experts at the City of Fall River and the City of Englewood (Colorado) strongly believe that outsourcing cleaning services (but not maintenance) led to significant cost savings without hindering customer service.

As summarized above, most of the cities we benchmarked provided consistent information. In addition, exploring the current structure of the City of Springfield more closely can inform viable consolidation scenarios for the City of Worcester.

The City of Springfield is the third largest city in Massachusetts, right after Worcester. Similar to Worcester, Springfield has 55 school buildings and 20 municipal buildings. The average age of Springfield public buildings is also relatively high at 55 years (vs. 66 at Worcester). While consolidating, Springfield decided to review their options through three different lenses: Capital Improvement, Building Maintenance and Repair, and Custodial Staff. Today, the Capital Improvement is run by the City, and Building Maintenance and Custodial Staff are fully consolidated. Springfield utilizes one work order IT system consistently across the City. The City of Springfield currently has 40 legacy tradesman positions and 212 in-house custodians. The City currently achieves 100% utilization with their tradesmen (tracked through their IT system) and outsource the remainder of the work wherever necessary.

When asked about their biggest challenge during consolidation, the City of Springfield executives highlighted the importance of transparency and clear communication.

Major Challenges

Based on our findings, the major facility management challenges the City is facing are summarized below.

As illustrated through our Facilities Survey results:

- Worcester lacks a unified vision for public building facility management, resulting in limited effectiveness.

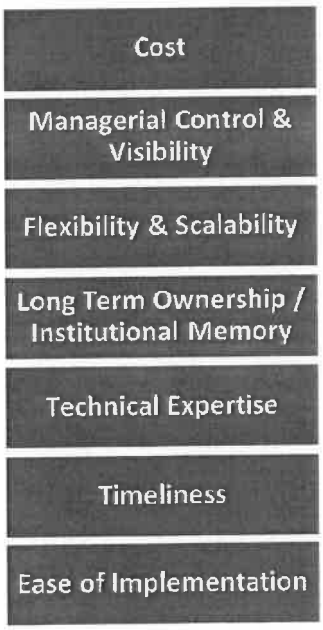
As identified through our facilities management process and organizational review:

- The City lacks an umbrella organization responsible for all key facility management-level decisions.
- Worcester lacks a prioritization scheme for capital improvement and deferred maintenance management across all City public buildings, leading to silo-ed investment decisions.
- The City has inconsistent building management and work order systems deployment across all buildings, limiting managerial visibility and creating inconsistency in cleanliness and maintenance standards.

Consolidation Analysis

Evaluation Criteria for Facility Management Consolidation Scenarios

We developed a set of criteria to evaluate possible consolidation scenarios for the City of Worcester. The criteria were shared and vetted by the key department heads. This distinct set of criteria enabled us to consistently evaluate each proposed scenario through the perspective of the City as a whole. Our set of seven criteria is captured below.



Cost

The Cost criterion seeks to determine whether the proposed scenario is a worthwhile public investment from a purely financial perspective. Specifically, we looked at whether the scenarios had the potential to generate savings in terms of reduced management overhead or service cost for cleaning and maintenance.

Managerial Control & Visibility

As the title suggests, the Managerial Control & Visibility criterion seeks to provide insight into workloads and backlogs at each department, reduce management complexity, and enable better management prioritization and resource trade-offs. Currently, each department functions in silos and almost all departments lack a work order tracking system that is consistently used.

Flexibility & Scalability

This criterion serves two purposes. The first is to allow the City of Worcester to scale up and support a larger square footage or greater complexity, if necessary. The second is to identify whether the scenario provides increased flexibility to the City in times of emergencies. For example, if the City maintains a central team of tradesmen, at any given time, the City will have a larger pool of resources to deploy to resolve an emergency.

Long-term Ownership / Institutional Memory

The Long-term Ownership / Institutional Memory identifies the benefit of having an inhouse custodian or tradesman team. As mentioned previously, the City has 85 buildings with an average age of 66 years and respective needs. Having an inhouse team would allow this knowledge to remain in the City rather than getting lost over time through outsourced work. It is possible to support a longer-term viewpoint through contracted efforts, but this is harder to accomplish in practice and will likely cost more.

Technical Expertise

This criterion tests whether the scenario provides adequate technical ability to address the needs of existing and future infrastructure. A larger tradesman team that includes all departments, including WPS, will enable the city to maintain more inhouse expertise compared to only having a team of tradesmen for the municipal buildings (excluding school buildings) due to scale. For example, hiring an electrician for 30 buildings might not justify the cost, while hiring two electricians for 85 buildings might be cost efficient. On the other hand, if all of the work was outsourced, the City would still be able to receive the technical expertise required. However, this might conflict with other criteria (such as cost or long-term ownership).

Timeliness

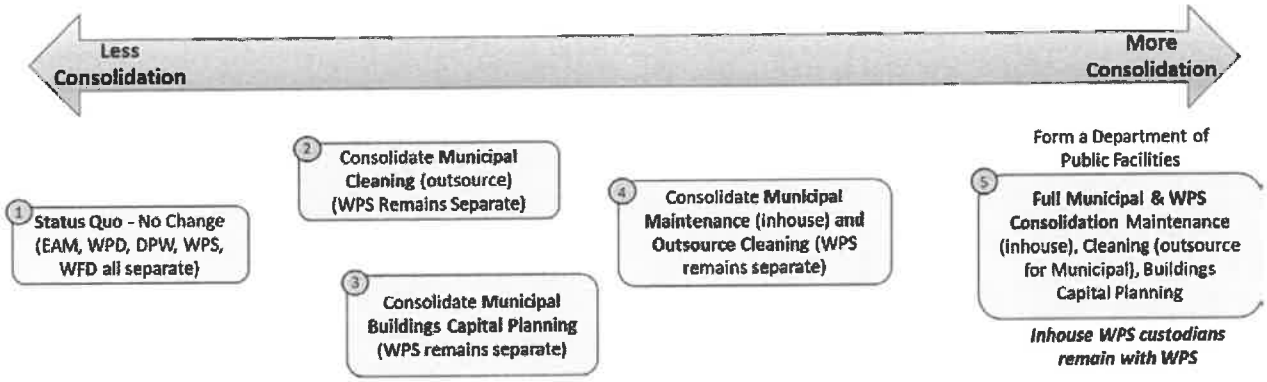
This criterion seeks to establish whether the scenario improves the total time of response for maintenance and cleaning from request to completion.

Ease of Implementation

The last one of the evaluation criteria is Ease of Implementation. This point of evaluation considers multiple factors from stakeholder buy-in, logistics, and expected time to implementation.

Consolidation Scenarios

Bringing together the learnings from our interviews, document reviews, site visits, data analysis, benchmarking, and surveys, the Ripples Group developed a set of consolidation scenarios for the City of Worcester. Although the image below does not display every single consolidation scenario we identified, it depicts the main scenarios that the City should consider.



Although each scenario has its own benefits, when the evaluation criteria were applied to each option, scenario 5 or full municipal and WPS consolidation came out to be the most effective consolidation scenario for the City of Worcester. A high-level summary of each scenario is described below.

Scenario 1 (Status Quo): This scenario was included as a baseline. Continuing in the current state and not making any changes will clearly not address any of the challenges identified in our study nor does it enable the City to benefit from consolidation.

Scenario 2 (Outsourced Municipal Cleaning Consolidation): This option assumes the consolidation of all current outsourced cleaning contracts for the City's municipal buildings (excluding WPS). Although minimal, compared to other scenarios, this scenario may lead to cost savings through economies of scale. It also improves management control by enabling centralized management of one cleaning contract, rather than multiple. However, it does not improve management visibility, promote long term ownership, provide flexibility, and improve technical expertise or timeliness for the City of Worcester.

Scenario 3 (Consolidate Municipal Capital Planning): This option assumes the consolidation of municipal capital planning only (excluding WPS). EAM, DPW, WFD, and WPD would submit their capital plans to a Capital Investment Committee which includes representatives from EAM, DPW, WFD, and WPD. This scenario would enable better informed prioritization of resources and trade-offs, which has the potential to generate long term cost savings through enhanced decision making. However, this

scenario, does not improve the City's flexibility or scalability, long term ownership, technical expertise or timeliness.

Scenario 4 (Consolidate Municipal Maintenance and Outsource Cleaning): This assumes that all municipal buildings (excluding WPS) consolidate their outsourced cleaning contracts and maintain one inhouse tradesman team for their 30 buildings. In terms of cost, this option reduces management overhead by 1 to 2 FTEs and generates ~75% of savings every time previously outsourced work gets completed through the newly developed inhouse maintenance team. Based on our calculations, the estimated net annual savings could be between $200K to $350K. In addition, as mentioned in scenario 2, one municipal cleaning contract may lead to savings through economies of scale. This option also provides improved management visibility into municipal buildings, enables centralized management and better-informed prioritization of resources. Furthermore, it is relatively easy to scale up and may provide flexibility during emergencies. It also promotes long term ownership by enabling institutional knowledge to remain in the organization, as well as enable the City to hire specific technical skills based on the maintenance work needed. Finally, less outsourced work will clearly result in shorter response times and faster request completion, (assuming the implementation of an effective work-order system).

On the other hand, this scenario has three drawbacks: Firstly, it does not include capital planning for WPS, which prevents the City from achieving maximum managerial control and visibility and potential long-term cost savings through better prioritization and informed decision making. Secondly, it does not provide flexibility to the City as the municipal maintenance team will be smaller compared to a team that oversees municipal and school buildings. Finally, it does not allow the City to hire the optimal staff with specific technical skills due to the size and volume of the tradesman team and work orders. For example, as mentioned previously, hiring an electrician for 30 buildings might not justify the cost, while hiring two electricians for 85 buildings is likely be cost efficient.

Scenario 5 (Full Municipal and WPS Consolidation): Our final and recommended scenario is a combination of all previous options. It assumes that all municipal and school buildings consolidate their building capital planning and maintenance services. Under this scenario, EAM, DPW, WFD, and WPD would outsource their cleaning contracts, while WPS would continue to manage their custodian staff separately for cleaning. Since WPS would be the only department with custodians, bringing WPS custodians under this consolidation scenario would increase complexity without adding any benefits. WPS custodians are an integral part of school operations, which should remain under the control of WPS. As to maintenance, there would be one inhouse tradesman team for all 85 buildings. Building capital planning would be developed based on inputs from all five departments, rather than in silos. This scenario satisfies all the criteria and captures all the benefits options 2, 3, and 4 generate. Furthermore, the combination of each scenario leads to further synergies, such as having one central management or tradesman team, making the whole greater than the sum of each option.

Although this scenario implies one maintenance team for all 85 buildings as a path to a successful implementation, we recommend that the municipal buildings first develop their own maintenance team (~5 new FTEs) before consolidating with the WPS maintenance team. This will ensure that adequate staff are hired to maintain all 85 buildings without overburdening the current WPS maintenance staff.

The table below captures the benefits of scenario 5 according to each criterion:

Scenario 5 Evaluation
Full Municipal & WPS Consolidation (building capital planning, cleaning, and maintenance)

Cost	▪ Reduces management overhead **[Reduces mgmt. overhead by 2+ FTEs]** ▪ Reduces outsourced work, leading to lower service costs **[~75% decrease for outsourced work cost. $570K - $700K savings annually (assuming a fully built maintenance team)]** ▪ **Requires hiring of maintenance staff by ~5 FTEs** [~$-360K] + expanded work sys. [~$6K]** ▪ Implies one municipal cleaning contract which may lead to savings through economies of scale ▪ Promotes potential long term cost savings through better prioritization and informed decision making
Managerial Control & Visibility	▪ Provides management visibility into all buildings* (maintenance, cleaning, capital) ▪ Enables centralized management (rather than siloed mgmt. / multiple cleaning contracts) ▪ Enables better informed prioritization of resources and trade-offs
Flexibility & Scalability	▪ Promotes flexibility during emergencies and overtime (e.g. building flood) ▪ Easy to scale up if needed (no change to model)
Long Term Ownership / Institutional Memory	▪ Promotes ownership and enables institutional knowledge to remain in the organization
Technical Expertise	▪ Enables the city to hire staff with specific technical skills due to size and volume
Timeliness	▪ Reduces outsourced work, leading to shorter response times and faster request completion [assumes implementation of effective work-order system] ▪ Enables on-call services or splitting to early and late day shifts
Ease of Implementation	▪ Requires hiring of maintenance staff (~5 FTEs to maintain current average quality level**) ▪ No insurmountable barriers

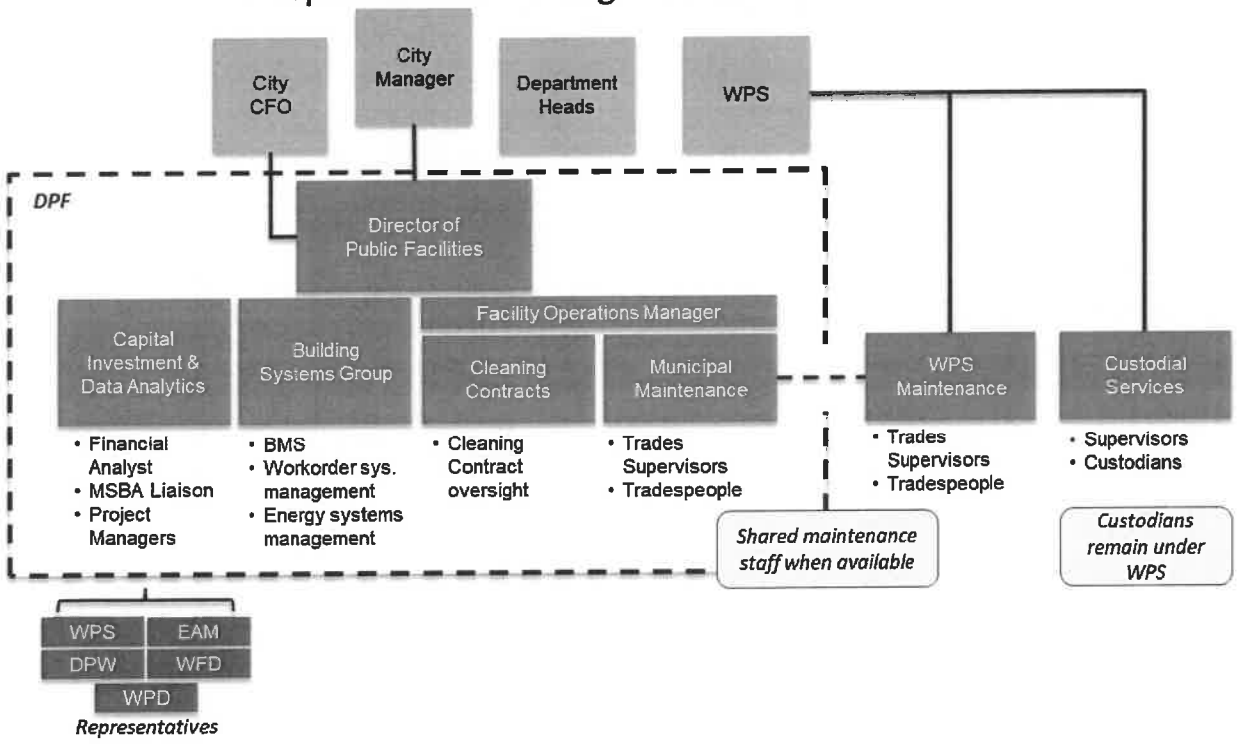
*85 buildings that are included in this study
**Based on Ripples analysis, benchmarks, and interviews. Does not include DCU Center

In line with our benchmarking efforts, scenario 5 would necessitate a new department of facility management to be formed (Department of Public Facilities [DPF]). This department would be created from existing Worcester staff and, in most part, would not require new hires. It is crucial for the new department to implement more detailed cost accounting measures to ensure data-driven processes and consistent allocation of resources. Specifically, this department should be:

- Sensitive to City and department priorities
- Equitable
- Information-driven (financial and operational)
- Flexible enough to enable contingency planning

In order to ensure success, the Department of Public Facilities (DPF) should be developed through a phased approach over the next two fiscal years. It is crucial for The City to take the necessary steps and develop the critical components of the new department before creating a new department. (e.g. extend work order management system to municipal buildings, develop the Municipal maintenance team, etc.). A detailed Facility Management Consolidation Implementation Plan is captured in Appendix G.
Our high-level proposed Interim Organizational Structure for the Department of Public Facilities (DPF) is captured below. As mentioned previously, we recommend that the municipal buildings first develop their own maintenance team before consolidating with the WPS maintenance staff. During this transition period, WPS and DPF should share their tradesman resources whenever the opportunity arises.

Worcester – Department of Public Facilities (DPF)
Proposed Interim Organizational Structure



Once both maintenance teams are fully developed, all maintenance staff should be combined under DPF.

As mentioned above, this department should be created by utilizing existing City employees. As depicted in the proposed organizational chart above, there would be three main divisions that are responsible for all 85 buildings included in this study:

- Capital Planning & Data Analytics
- Building Systems Group
- Facility Operations (maintenance & cleaning [excluding WPS custodians])

The Capital Planning & Data Analytics division would have representatives from each department to promote inclusive decision-making. It is important to emphasize that all recommended changes should account for existing bargaining unit agreements.

Recommendations

Based on our findings, we provide below our full set of recommendations for the City of Worcester. Our recommendations are broken into three sections: Organizational, Systems Related, and Process Related.

Recommended Organizational Changes

- **Establish a Facility Management vision for the City.** As Robert H. Goddard once put it, in rather colloquial but effective terms, "Every vision is a joke until the first man accomplishes it; once realized, it becomes commonplace." To set the right tone for all relevant stakeholders, the City should set a facility management vision now. The major components of the Worcester public facility management vision should likely include a focus on occupant safety, accessibility, customer service, operational efficiency, cost containment, scalability, and continuous quality improvement.

- **Form a Department of Public Facilities, through a phased approach, with representatives from all stakeholder groups and develop Key Performance Metrics.** While the original RFP inquired about the possibility of consolidating all public building facility management under EAM, given the wide variance in needs and capabilities across departments, we recommend establishing a dedicated organization with full authority to make investment decisions. This department would be guided by clear standards and measures informed by the priorities and functional needs of each department. In addition, it is crucial for the new department to implement more detailed cost accounting measures to ensure data-driven processes and consistent allocation of resources.

    a) Consolidate Building Capital Planning (with representatives from all departments)
    b) Develop one maintenance team for all 85 occupied buildings
    c) Outsource all municipal (non-school) building cleaning as one cleaning contract and maintain custodial staff for all school buildings

- **Enable collaboration across facility management stakeholders.** The City has an opportunity to increase efficiency and optimize resource utilization through systemic communication and periodic check-ins across departments. This recommendation could be implemented independent of the ones mentioned above and could have an immediate cost reduction impact. For example, our work with WFD introduced us to a concrete construction expert there whose knowledge could be leveraged across the entire system.

- **Close staffing gaps for custodial and tradesmen teams to cover the needs of all 85 occupied buildings.** By closing staffing gaps, the City can increase customer satisfaction and lower the magnitude of deferred maintenance and the overall cost of maintaining public buildings.

    - Consider converting custodial expenditure to custodian FTEs over time to increase flexibility and reduce costs.

- **Start developing an outreach campaign to communicate potential upcoming changes to internal and external stakeholders.** In our experience, changes of the magnitude described above require clear and consistent communication with all stakeholders who may be impacted. Therefore, it is not premature to establish a communication plan and start generating the required content today.

Recommended System Related Changes

- **Implement building management and work order management systems across the facilities management operation, likely leveraging existing systems as mentioned above.** This step is a must-have for any level of consolidation as it will create managerial visibility and enable continuous quality improvement at the City level. The initial focus should clearly be on the larger departments. All departments should be required to consistently use the system for their cleaning and maintenance requests. As a second phase, the City should consider providing handheld tablets / smart phones to tradesmen to better track maintenance request completion.

- **Implement supply/inventory management system.** This system would provide valuable data to management and lead to an increase in overall efficiency. For instance, through a supply management system, the respective managers could decide whether one product is better than another substitute product or identify whether the cleaning staff are using the right type or amount of supplies.

Recommended Process Related Changes

- **Develop a capital investment prioritization scheme and management process.** In our humble opinion, this step will be the most challenging in consolidating the City's public building facility management initiatives. The prioritization scheme must meticulously balance the operational and financial needs of all internal and external stakeholders. Below we propose a preliminary list of criteria that could contribute to such a building-level prioritization model:

    a) Daily number of Worcester residents served through the building/daily traffic excluding occupants (to assess impact on safety and customer service)
    b) Number of building occupants (to assess impact on safety)
    c) % of building occupants who are children or elderly (to assess impact on safety and customer service)
    d) Magnitude of deferred maintenance investment needs in dollar terms

e) Likelihood that investment will result in financial or operational efficiency within 3-5 years
f) % of investment to be sourced from capital budget (vs. foundation budget, grants, MSBA)
g) Whether the project can be conducted partially
h) Risk of investment delay on public health, safety, and accessibility
i) Risk of investment delay on service quality
j) Risk of investment delay on project cost over time
k) Ability of building to generate revenue for the City
l) Impact of capital investment on City curb appeal
m) City's willingness to invest in building (vs. divesting it)
n) Number of operating hours per day for building

As capital investment management is improved over time, the City should shift its focus to preventive and predictive maintenance such that the remediated needs do not revert to become new capital needs.

- **Develop Cleaning and Maintenance Standards and field periodic online customer satisfaction surveys to measure progress.** This recommendation not only allows the City to gauge the satisfaction level of its staff on an ongoing basis, but it also enables them to capture issues that might have otherwise fallen through the cracks. For example, during our recent Worcester Facilities Staff Survey, respondents clearly voiced their dissatisfaction with:

  a) Performance of some custodial staff
  b) Cleanliness of bathrooms
  c) Rodent problem
  d) Long response times for requests
  e) HVAC and air quality in some buildings

- **Implement a Facilities Management Dashboard.** In many instances, public and private sector organizations fail to leverage the data they have been collecting due to insufficient reporting tools. Assuming the implementation of building management and work order management systems across the facilities, it will be crucial for the City to leverage the data gathered and turn them into actionable insights.

- **Establish consistent annual performance reviews for tradesmen and hired custodians.** This is a key step in ensuring consistency and communicating expectations to City employees. Without it, managers and supervisors cannot provide constructive feedback to their employees and hold them accountable. Clearly, this should be accomplished in accordance with existing collective bargaining contracts where applicable.

- **Prioritize facility management training and a Continuous Quality Improvement (CQI) process.** Processes and management styles can always be improved. To ensure the City of Worcester is benefiting from best practices and optimizing their processes, management training and CQI processes should always be prioritized.

Appendix A – Internal Documents & Data

Documents Reviewed

- Worcester Annual Budget FY18
- Organizational Charts
- Facilities Department Fact Sheet
- Worcester ADA Self-Evaluation
- WPS – Master Plan for Urgent Repairs
- WPS – Maintenance Budget for MSBA
- WPS – Facilities Capital Improvement Plan
- EAM – Facilities Capital Improvement Plan
- City of Worcester IGA Honeywell Report
- Relevant Job Descriptions
- WPS – Custodian Training Manual

Data Analyzed

- WPS, EAM, DPW, WFD, WPD historical operating expenses
- WPS – Historical Work Order Submissions (School Dude)
- WPS – Custodian Pay Scale
- WPS – Maintenance Personnel
- WPS – Equipment Inventory
- City and School Occupied Facilities and Energy Data
- Honeywell Excel Database
- Worcester Facilities Survey for City Employees
- Worcester Facilities Survey for Public Users

Appendix B – Subject Matter Expert and Benchmarking Interviews

- Paul Dunphy, Harvard Facility Compliance Coordinator
- John Bello, MA Trial Court, Associate Court Administrator (Former Facilities Director)
- Paul Hines, City of Quincy, Commissioner of Department of Public Buildings
- Garry Cunniff, City of Quincy, Head of Engineering
- Walter Macdonald, City of Quincy, Director of Building Maintenance
- Kevin Murphy, City of Quincy, Director of Tradesman
- Chris Gallagher, City of Fall River, Director of Facilities Maintenance
- Ken Pacheco, City of Fall River, Chief Operating Officer for Public Schools
- Tammy Moutinho, City of Fall River, Head Admin Clerk
- Eric Keck, Englewood Colorado, City Manager
- Patrick Roach, Springfield, Chief Financial Officer for Public Schools

Appendix C – Select List of Research Documents

- Consolidation of Buildings and Grounds Departments and Other Initiatives of the Town of Carver, MA and the Carve School Department
- Lexington Facility Consolidation
- City of Danvers, Sharing Services with Schools – Facilities
- Town of Natick Facilities management Consolidation Study
- Center for Governmental Research – A review of Collaborative Options for Functions & Facilities – City of Tonawanda, NY
- Center for Governmental Research – A review of Shared Service Options – Addison, NY
- MA Trial Court Building Cleaning and Maintenance Standards
- Federal Energy Management Program – Operations & Maintenance Best Practices
- Service Sharing between Municipalities and Schools in New York State
- Organizational Study of Facilities Maintenance Fall River, MA
- APPA Standards
- APPA Facilities Performance Report 2014
- Best Practices for School Districts Facilities and Maintenance (Hanover Research)
- IFMA Maintenance and Operations Survey
- IFMA Facility Management Staffing Report
- IFMA Benchmarking for Facility Professionals
- Worcester Comprehensive Annual Financial Report June 30, 2017
- Facilities Information Management - A guide for state and local education agencies
- Office of Superintendent of Public Instruction - Facilities Maintenance & Operations - Classified Adequacy Staffing Report
- Blue Pillar - Centralized Facility and Energy Management
- National Center for Education Statistics and the National Cooperative Education Statistics System – Planning Guide for Maintaining School Facilities

Appendix D – Survey Questionnaires

Worcester Survey Questions for Staff Members

- Which department manages the building you primarily work in?
- Which DPW building do you work at most often?
- For how many years have you been working for the City of Worcester?

1. Overall, I am satisfied with cleaning services in my building (specifically, office, restroom, hallway, stairwell cleanliness, restroom supplies availability, etc.).
2. I know who to contact when I have a cleaning or maintenance request (e.g. lights, HVAC, Plumbing).
3. In most cases, I have to contact only one person for all my cleaning and maintenance requests (e.g. lights, HVAC, Plumbing).
4. In general, my cleaning and maintenance requests are resolved in a timely manner
5. In general, I am notified when my cleaning or maintenance request is completed.
6. I would like to be notified when my cleaning or maintenance request is completed.
7. My building has adequate heating during the winter season.
8. My building has adequate cooling during the summer season. Please select N/A if your building doesn't have A/C.
9. The indoor air quality in my building is satisfactory.
10. Overall, I am satisfied with the look and feel of my building (building condition, comfort, etc.).
11. Overall, I am satisfied with my building's accessibility for individuals with disabilities.
12. Overall, I am satisfied with this building's curb appeal (main entrance, building exterior and grounds).
13. Overall, I am satisfied with the facilities management services (cleaning and maintenance) I receive.
14. I would like to submit my cleaning and maintenance requests through an easy to use online system.
15. In general, I am satisfied with the adequacy of snow removal conducted for my building.
16. The City of Worcester has a clear vison on municipal facilities management.
17. There is sufficient communication and collaboration amongst city departments on facilities management.

18. Is there any other feedback you would like to provide regarding your building's facility management?

Worcester Survey Questions for Public Users (Franklin Square Library, City Hall, Worcester Senior Center, Police HQ, Union Station)

- How often do you visit this building?

1. Overall, I am satisfied with this building's cleanliness level (specifically, restrooms, hallways, stairwells, etc.).
2. The indoor air quality for this building is satisfactory.
3. Overall, I am satisfied with the look and feel of this building (building condition, comfort, etc.).
4. Overall, I am satisfied with this building's accessibility for individuals with disabilities.
5. Overall, I am satisfied with this building's curb appeal (main entrance, building exterior and grounds).
6. Is there any other feedback you would like to provide regarding this building's facility management? (open ended)

Appendix E – Building Database

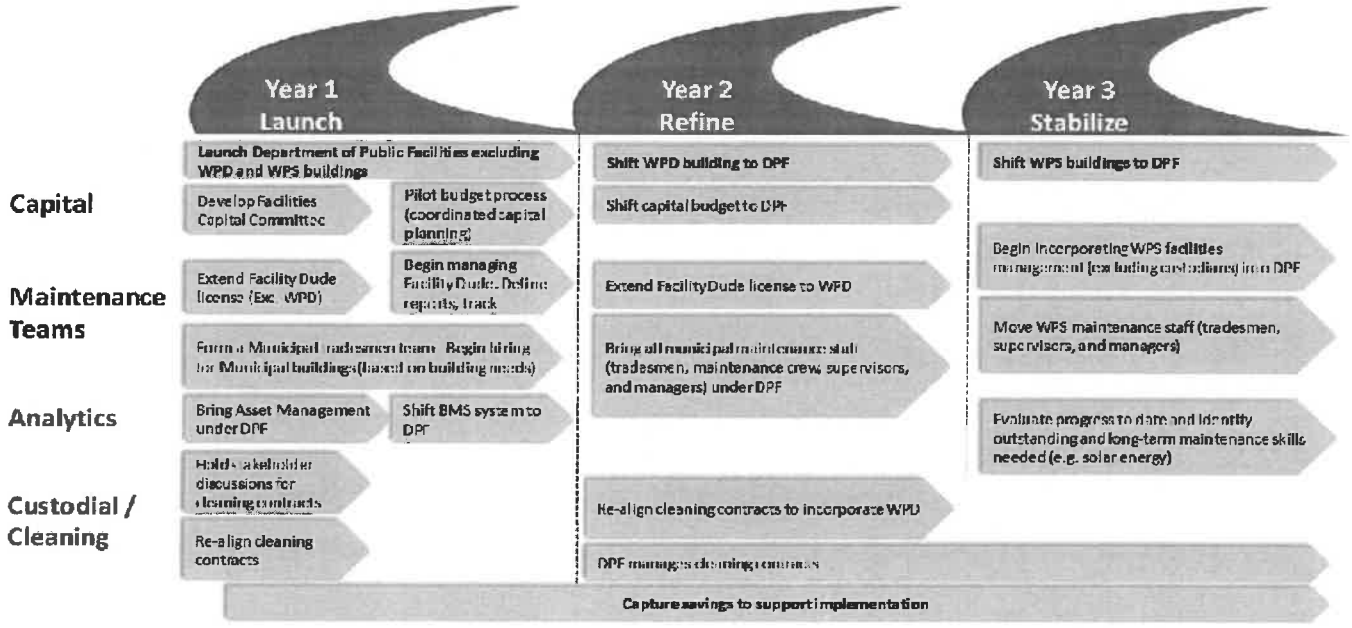
Worcester Building Database Final.xlsx

(See attachments)

Appendix F – Capital Allocation Tool

Capital Allocation Tool Final.xlsx
(See attachments)

Appendix G – Facility Management Consolidation Draft Implementation Plan



Year 1

The first step we propose in the first year, following the forming of DPF, is the development of the Facilities Capital Planning Committee. The Committee should have equitable representation from EAM, DPW, WFD, WPD, and WPS. We suggest establishing a clear set of criteria, that all members agree upon, to collectively prioritize and allocate. The criteria selection is a crucial starting point to align viewpoints and support a City-wide perspective across the committee, which would enable the Committee to focus on the key needs of the City. Historically, each department submitted their requests without a full understanding of the City's needs as a whole and the relative needs of all departments. This initial, but vital step will allow the City of Worcester to begin facility management consolidation and address current deferred maintenance with a holistic view.

To enable flawless work order tracking, DPF should expand the license of the work order management technology currently used by WPS (School Dude). The upgraded "Facility Dude" license should be extended to all facilities (excluding WPD in the first year) with the school and municipal facilities

managed separately. The upgraded system will increase managerial visibility and enable continuous quality improvement at the City level. The initial focus should be on the larger departments. Over time, all departments should be required to consistently use the same system for their cleaning and maintenance requests. While this will require a major effort to fully deploy, consistent use will provide an opportunity to enhance customer service and improve response times.

As the work order tracking system is being implemented, in a staggered fashion, all current municipal building resources, including tradesmen, maintenance crew, supervisors and managers, should be moved under DPF and become a part of the municipal maintenance team. In addition, the City should begin hiring additional tradesmen for municipal buildings that possess the required set of skills to address requests. Hiring should be done by carefully studying building needs and work orders to focus on high-cost efforts that can be managed in-house more efficiently. Finally, the Building Management System (BMS) should also be shifted over to DPF at approximately the 6-month mark in Year 1.

At this point, DPF should engage in stakeholder discussions to consolidate all cleaning services (excluding WPS and WPD) into one cleaning contract for easier management and potential cost savings due to scale.
Assuming that the new maintenance team is up and running in the first six months, estimated potential savings will be in the range of $250,000 to $300,000 (excluding cost of hiring staff; we estimate that ~5 additional staff would be needed for all municipal buildings). These savings stem primarily from a shifting of outsourced work to internal resources.

Year 2
By Year 2, DPF will be ready to expand. At this point, the WPD building and maintenance resources should also be shifted to DPF oversight. Incorporating the WPD building will require DPF to repeat some of the steps mentioned above: setting up a Facility Dude license for WPD and ensuring consistent usage of the system for cleaning and maintenance requests.

Another important component will be the transfer of WPD custodial staff, who are currently tasked with cleaning and maintenance, to DPF. Labor involvement at this stage will be critical to ensure buy-in and a smooth transition. One alternative path could be moving current WPD custodian staff into WPS, which will maintain a custodian-based operation going forward.

Assuming the WPD building can be incorporated into DPF in a short time frame, the estimated potential savings during year 2 should range from $500,000 to $750,000 (including savings from outsourcing WPD cleaning services but excluding cost of hiring staff; we estimate that ~5 additional staff would be needed for all municipal buildings, as mentioned above.)

Year 3
Assuming the timely and on-budget completion of all Year 1 and 2 activities, in Year 3, DPF should focus on bringing WPS buildings into the new structure, excluding the custodian staff. Clearly, this will be a monumental undertaking and should be managed in very close collaboration with WPS.

Once WPS buildings are incorporated, DPF should focus on stabilization: managing all the maintenance of its municipal buildings under its purview, including work order requests with a team that can meet most of its needs. Outsourced work should be limited to specialty tasks (such as slate roof maintenance) to maximize the City's return on building an in-house maintenance team.

Another critical effort in Year 3 will be the review of progress to date. This includes the analysis of the Department's functioning to date, reduction in backlogged maintenance needs, improved deployment of resources (in-house vs outsourced work), and ultimately visible improvement in the quality and functioning of the City's municipal buildings.

The incremental savings of adding WPS buildings and maintenance staff under DPF are assumed to be minimal but the quality of service, responsiveness, and reduction in backlog should increase consistently. Realistically, there will be savings to combining both teams into one under DPF, such as having one central management and tradesmen team, reducing management overhead, and coordination cost. There will also be savings associated with the cost of monitoring and reviewing the maintenance backlog. The true test of facility management consolidation will be DPF's ability to improve the efficient functioning of all facilities, further supporting the progress of Worcester in the 21st century.