Office of the Auditor General

Audit of Facility Management

Tabled at Audit Committee
November 24, 2020

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Executive summary

In 2017, the Office of the Auditor General (OAG) conducted a risk assessment of the Recreation, Cultural and Facility Services (RCFS) Department in order to create a risk-based list of potential audits to complete over the next several years. As a result of the risk assessment, the OAG conducted an audit of the Facility Management (FM) function which extends beyond the RCFS Department to other departments/branches, for example, Planning Infrastructure and Economic Development, and the Environmental Services Division.

The City manages 1,073 city-owned facilities with over 13 million square feet, greater than $3.4B in replacement value and an average age of approximately 40 years. In 2019, the City spent approximately $154.3M in maintenance and operations and approximately $40.7M in capital expenditures on its facilities[1].

FM is defined by the International Facility Management Association as “a profession that encompasses multiple disciplines to ensure functionality of the built environment by integrating people, place, process and technology.” For purposes of this audit, a facility is defined as: "the buildings and equipment attached to the building for the purposes of providing for a particular purpose". The FM function typically includes:

- Facility planning;
- Engineering and construction interface;
- Corporate Real Estate interface;
- Procurement and contracts;
- Facility maintenance and repairs;
- Providing custodial services;
- Coordinating moves;
- Maintaining and upgrading building systems;
- Maintaining external grounds; and
- Providing client support.

Activities related to the facility management function are carried out by numerous organizational units across the City.

[1] Includes Ottawa Police Service and Ottawa Public Library facilities.

Conclusion

Facilities are crucial to the City's operations and delivery of programs and services and impact significantly on City budgets. The absence of planned, coordinated and funded FM will result in facility deterioration, program interruption, health and safety risk and excessive cost to the City. The audit observed that FM management practices require considerable improvement to ensure that facilities support, cost-effectively, City operations, programs and services, both in the short-term and long-term; that the condition of facilities are properly managed and municipal investments in facilities adequately preserved; and that the impact of facilities on City budgets are properly managed.

The implementation of the recommendations made in this report will help the City achieve these improvements through strengthening coordination and planning of the FM function; improving investment and funding practices impacting on facility condition and asset preservation; and providing effective oversight, risk management and stewardship over the management of facilities.

Findings

Facility condition

The audit expected to find complete information on the condition of City facilities and the amount of deferred maintenance (i.e. existing maintenance repairs and required capital renewal not undertaken in the facility when they should have been). The audit found that the City does not have full knowledge of the condition of its facilities and the amount of its deferred maintenance. Facility condition is not assessed on all assets, and where assessed, they have not been assessed on a timely and consistent basis with information that is complete and up-to-date.

Understanding the condition of facilities and managing deferred maintenance is important because City facilities are crucial to the operation of the programs and services of the City. Knowledge and communication of deferred maintenance is especially important as it identifies the work that needs to be undertaken in the facilities, priority of the work that needs to be done, when it needs to be undertaken and the approximate cost of the work to the City. A full understanding of the condition of facilities is necessary in order to determine the overall investment strategy for a facility.

Based on building condition data available-to-date, the audit noted that there are several key City buildings in reactive management and in a crisis state. The audit

calculated deferred maintenance on City-owned facilities to be approximately $488M and calculated that capital maintenance and life-cycle requirements in City facilities are projected to increase to at least $1.2B by 2030. This current and projected deferred maintenance is likely significantly understated as assessment of building conditions has not been fully updated and not all facilities have had assessments.

The audit also expected to find FM priorities fully linked to available funding. Analysis developed by the audit indicates that the City has continually underinvested in its facilities and that priorities outweigh available funding. For example, approximately 2,000 projects to replace components that are at, or nearing their end of life, at an estimated cost of $147.5M, will be deferred in 2020 due to inadequate funding.

Deferring maintenance is a short-term solution with long-term consequences unless additional resources are provided. The usual impact with this approach is a growth in deferred maintenance costs. This is a well-known problem at the municipal level with the Federation of Canadian Municipalities reporting, as far back as in 2007, that deferred maintenance was growing faster than previously thought, repairs and replacement costs were skyrocketing and that municipal assets were reaching their breaking point. Other industry references also provide a strong indication that deferred maintenance continues to grow over time. Municipal governments have seen a 10-fold growth since 1985. Deferred maintenance has also become a strategic priority for Canadian universities and hospitals according to literature.

Without full knowledge and understanding of deferred maintenance and without strategies to address the shortfall in funding, deferred maintenance will increase, and facilities will eventually deteriorate to a point where repair, maintenance or renewal will no longer be enough to maintain facilities in operation. This will impact facility users and can result in facility closures, program interruption and possibly impact the health and safety of occupants in the facilities. This risk is evidenced through the number of unplanned projects that occur in City facilities. The audit observed that over the last 6 years, approximately half of the FM projects were unplanned (i.e. as a result of components failing in the facilities). Costs for unplanned or reactive maintenance and repair are typically higher than doing routine preventive maintenance due to overtime and other factors. Furthermore, according to industry-wide literature every $1 deferred in maintenance costs $4 of capital renewal needs in the future.

Coordination of FM

FM activities transcend across several management areas: facilities operations, maintenance, utilities, project delivery, quality assurance, risk, life-cycle renewal and real estate. Decisions regarding these management areas are interrelated and impact each other. The audit expected to find that facility management is coordinated across all City-wide facilities and across all stages of a facility's life-cycle and that the full range of FM activities and services are integrated and operate under a comprehensive City-wide strategic plan and vision. This expectation is underscored by the Comprehensive Asset Management (CAM) Policy of the City of Ottawa, approved by Council in 2012 which recognizes the importance of linking FM into all stages of the asset management life-cycle and applies to all physical assets of the City, including facilities. The audit found that compliance with the CAM Policy is not achieved as the FM function at the City is not coordinated and integrated across all phases of the assets' life-cycle.

The FM function, and the various groups that FM interact with, have undergone multiple reorganizations. The FM function went from a centralized function prior to 2009 to one that is highly decentralized and siloed in nature as a result of a number of successive reorganizations (2009, 2011, 2012, 2016, 2017 and 2019). As a result, there is no single group that is responsible and accountable for the facility and ensuring integration and cohesiveness. The current siloed approach to FM results in a lack of clarity in accountability for facilities, inefficiencies, increased costs, increased risk of asset failure and program interruptions and the City being unable to answer key questions about its facilities:

- What is the facility condition?
- Does the City need the facility; and, if so, for how long?
- What investments need to be made in the facility?
- How much money is needed?
- When does the investment need to be made?

The consequences in lack of coordination of the function can be seen by preliminary information obtained by the City that indicates that it is in contravention of the Ontario Building Code on 3 of its facilities putting occupant's health and safety at risk. One facility is significantly over-accommodated while 3 facilities have fewer washrooms than required. The overaccommodation in one facility was known as far back as 2013.

Integrated Planning Framework not in place

A key aspect of FM is understanding the short-term and long-term plans of the City and its programs and integrating that understanding into the short-term and long-term planning of facilities. The audit found that this integration of plans does not occur and that components of an integrated planning framework, throughout all levels of FM strategy, are missing or not fully developed. The audit expected to find program strategies that are clearly linked to FM requirements. The audit found that program strategies are not in place and there are no processes that link program strategies with FM strategies. The audit did not find strategic and tactical facilities plans and accommodations strategies in place to: provide direction; guide the FM practices and use of space within the facilities; provide a cohesive strategy to maintain facilities at a pre-defined level of performance, level of service; and meeting strategic objectives over the planning horizon.

The City does have a Comprehensive Asset Management (CAM) Framework in place, approved by Council in 2012, that encompasses facilities, along with all other assets. However, components of the Framework, including the strategic facilities plans and asset management plans have not yet been developed.

The lack of integrated planning adversely impacts on the City's ability to:

- Cost-effectively manage facilities;
- Optimize the FM portfolio;
- Effectively react to changes in demand and requirements (e.g. decrease in ice-time bookings);
- Make effective and fiscally responsible FM investment decisions;
- Articulate demand and enable FM to meet demand requirements in both the short-term and long-term;
- Articulate and prioritize FM activities that need to be undertaken; and
- Shift FM focus from reactive to proactive.

Roles and responsibilities and Service Levels

The audit found that roles and responsibilities are not clearly defined, communicated and understood as they relate to City-wide FM including interaction with Asset Management, Design and Construction, Quality Management and CREO and with respect to agreements with third parties. Gaps in roles and responsibilities can result in project risks, health and safety issues not being addressed, non-compliance with legislative requirements and increased liability to the City.

Service level agreements (SLAs) are an industry standard and a requirement of the City's Comprehensive Asset Management (CAM) Framework approved by Council in 2012. They are statements about quality, quantity, and timing relevant to end users and provide the basis for decisions on staffing levels, resourcing of services to be provided, staff training, and ultimately the cost of the service. The audit found that the City is not in compliance with the CAM Framework as SLAs and levels of service for FM are largely not in place for facilities. An absence of SLAs results in:

- The inability to properly resource the FM function to ensure appropriate staffing;
- Lack of clear roles and responsibilities and duplication and gaps in FM activities;
- Inconsistent service delivery resulting in overuse/underuse of FM resources;
- Inability to assess whether facilities are maintained at an acceptable and consistent standard;
- Increased cost of the service; and
- Inability to assess value-for-money received from FM services.

Strategy for delivery of the FM function

The audit expected to find that there is an appropriate allocation of inhouse and contracted resources and that the use of resources in FM is adequately planned. A key function of a service delivery plan or strategy is to allow planning of resources required to undertake routine services, projects, and emergency response. Reviews of resourcing requirements have been informal and conducted on an ad hoc or one-off basis, succession plans have not been completed and there has not been a review of the optimal model, including the possibility of outsourcing aspects of FM, for service delivery of the FM function and the resources required to deliver FM services. The lack of an FM resourcing strategy means that the City is unable to determine the optimal balance of inhouse vs. external resource utilization of FM resources. The consideration of outsourcing aspects of FM is an industry practice that has resulted in significant outsourcing arrangements to public organizations. At the municipal level, the audit noted that the cities of Toronto, Winnipeg, Brantford and Greater Sudbury all identified opportunities for significant increased cost-effectiveness through outsourcing.

Integration of repairs and capital requires improvement

The audit expected to find that facilities' capital activities are fully integrated with repairs and maintenance. This includes integration of systems and processes as well as the assessment of facility condition on all assets. The audit found that the overall level of integration between FM groups and Asset Management is not cost-effective in ensuring

appropriate integration between capital and repairs and maintenance activities and spending. The siloed nature of FM and life-cycle management was evident throughout the audit. The integration of facilities capital activities and repairs and maintenance is critical to ensuring that investments are aligned with priorities and to ensure cost-effective preservation of facilities. It is also necessary in order to reduce the risk of asset failure and program interruption.

Performance of facilities inadequately monitored, and risks not fully assessed

The audit expected to find performance information in place to permit management to exercise oversight and contribute effectively to FM decision making. The audit found that there is no formal performance management framework across the FM function that would permit management to properly exercise oversight over facilities and provide management with information required for decision-making and corrective action. Currently there is no department in the City that has information on how well all facilities owned by the City are maintained.

The management of risk is one of the key responsibilities of a facility manager. The audit expected to find that FM risks are identified, mitigated and monitored. The audit found that a comprehensive and detailed assessment of FM risks does not occur. The responsibility over the FM function being divided among a number of groups without an overall cohesive strategic FM focus results in an absence of a function-wide detailed risk assessment. By not conducting proper risk assessment, the risks of facility closures, health and safety issues, program interruptions are inadequately mitigated.

Potential Savings

Integration and centralization of the FM function along with a full review of the optimal model for service delivery would provide savings of resources through the best use of both internal and external resources. Outsourcing should be considered in strategic areas of FM at the City as there is potential for cost savings and enhanced service delivery.

The audit observed that significant investments have been made over the last 5 years in assets that have 5 years or less of remaining life and have identified the following additional work required to be performed:

- Project work has been identified by the City as required on 37 facilities where the value of the work exceeds the cost to replace the facility. The excess of project work over the cost of replacing the facilities is $14M.
- Project work has been identified by the City in the amount of $31.5M on 116 assets with zero remaining life.

While the above assets may be functional and justify significant investments, they may also represent areas of potential savings for the City. Savings that could be put towards overall municipal deficit. Strategies should be developed to realize savings and determine the level of funding that the City is willing to invest in facilities with little or no remaining life or facilities where the deferred maintenance is greater than replacement cost.

Benchmarking in FM is an aspect of performance measurement that ceased in 2016 at the City. The municipality used to conduct benchmarking of its facilities but found that there was difficulty in ensuring consistent data was being compared. Research by the Building Owners Management Association indicates that possible savings from benchmarking can be up to 3% of facility operating costs.

Recommendations

In order to address the various findings identified above, we propose that the City implement the following recommendations to enhance their current processes and practices and address areas of risk and gaps found during this Audit.

Audit objective 1: Assess the effectiveness of the coordination and resourcing of the Facility Management (FM) function

- Review the organizational and governance structure to ensure it supports an integrated City-wide facility management function;
- Identify and implement necessary actions to regain compliance with the Ontario Building code as it relates to the identified 3 facilities; and
- Undertake a service delivery review of the facility management function to identify cost-effectiveness.

Audit objective 2: Assess the adequacy of the FM planning framework

- Develop integrated management plans for the facility function.

Audit objective 3: Assess the controls that ensure operations and maintenance activities are prioritized and integrated with capital requirements

- Ensure that building condition assessments are completed on a timely basis;
- Develop strategies to manage the existing underfunding of assets, mitigate the impact of the existing underfunding; and
- Develop integrated systems that directly link life cycle, and facilities management repairs and maintenance.

Audit objective 4: Assess the controls over FM funding and budget management

- Identify O&M and capital requirements required for facilities, align budgets to O&M and Capital Requirements and develop strategies to address the shortfall in funding for facilities and resulting deferred maintenance; and
- Undertake a formal review of the optimal framework for ensuring the accountability in the use of facilities and office space.

Audit objective 5: Assess the controls that ensure the FM function is adequately supported by information, risk and performance management

- Develop and implement a strategy for the integration of facility management related systems;
- Implement a risk management framework that encompasses all aspects of the facilities management and takes a functional approach to risk management; and
- Implement a comprehensive performance measurement framework that encompasses all aspects of facilities management and is integrated with facility management decision-making.

City management response

Management agreed with all of the 34 audit recommendations.

For detailed management responses, including planned actions and target dates, see Appendix 2 of the detailed audit report.

Detailed audit report

Introduction

In 2017, the Office of the Auditor General (OAG) conducted a risk assessment (RA) of the Recreation, Cultural and Facility Services (RCFS) Department in order to create a risk-based list of potential audits to complete over the next several years. As a result of the risk assessment, the OAG conducted an audit of the Facility Management (FM) function which extends beyond the RCFS department to other departments/branches, for example, Planning Infrastructure and Economic Development, and Public Works and Environmental Services.

Background and context

The City manages 1,073 city-owned facilities with over 13M square feet, over $3.4B in replacement value and an average age of approximately 40 years. In 2019, the City spent approximately $154.3M in maintenance and operations and approximately $40.7M in capital expenditures on its facilities[2]. The audit determined that, at the end of 2019, the facilities were in need of at least $487.5M in overdue capital work (deferred needs).

The following are key facilities by service area:

- Recreation and Culture – 101 cultural facilities, 18 recreation complexes, 88 community centres and buildings, 26 Arenas, 28 indoor and outdoor pools, 2 covered sports fields, 71 administrative, storage and utility buildings;
- Drinking Water – 2 Water Purification Plants (Britannia and Lemieux Island), 16 pumping stations and 9 storage facilities;
- Wastewater and storm water – Treatment Plant known as 'Robert O. Pickard Environmental Centre' (ROPEC), 55 sanitary pumping stations, 12 storm pumping stations, 3 regulator/diversion facilities, 3 odour control facilities, 3 wastewater storage facilities and 7 flow monitoring sites;
- Solid waste – 1 administrative building and 1 recycling and diversion centre;
- Transportation – 13 buildings and garages that support the transportation of people, goods and services;

[2] Includes Ottawa Police Service and Ottawa Public Library facilities.

- Transit – 68 buildings servicing OC Transpo administration, Customer Services, and bus and rail operations;
- Library – 21 library buildings;
- Social and Health Services – 4 long-term care facilities, 7 day care buildings, 3 shelters and 166 community housing buildings;
- Fire – 45 Fire Stations, 4 Buildings and 1 Dispatch Centre;
- Police – 9 buildings dedicated to the Ottawa Police Service;
- Paramedic – 1 central deployment facility and 8, stand alone, post locations;
- Corporate – 9 general administrative buildings/facilities and 8 service centres; and
- By-Law – 1 by-law administrative building.

Facilities Management function defined

FM is defined by the International Facility Management Association as “a profession that encompasses multiple disciplines to ensure functionality of the built environment by integrating people, place, process and technology.”

For purposes of this audit, a facility is defined as: Facility means "the buildings and equipment attached to the building for the purposes of providing for a particular purpose". The FM function typically includes:

- Facility planning;
- Engineering and construction interface;
- Corporate Real Estate interface;
- Procurement and contracts;
- Facility maintenance and repairs;
- Providing custodial services;
- Coordinating moves;
- Maintaining and upgrading building systems;
- Maintaining external grounds; and
- Providing client support.

Delivery of the Facility Management function

Activities related to the facility management function are carried out by numerous organizational units across the city, as depicted in the diagram in Appendix 4.

Facility management has a number of key interfaces:

- Programs, for example, RCFS, Ottawa Police Service, Fire Services as occupants of the facilities and for facility planning and development.
- Infrastructure Services for:
  - Asset Management: which includes Infrastructure Assessment – Building and Park Asset, Infrastructure Planning, Capital Planning and Strategic Asset Management
  - Economic Development and Long-Range Planning - growth management, energy evolution, climate change, and green building
  - Design and Construction – Facilities
  - Quality Management: which includes guidelines and standards, project quality assurance and material quality assurance
  - Corporate Real Estate Office (CREO): for real estate services, such as Acquisitions, Disposals, Leasing, and for accommodation management
- Parks for ground maintenance
- Public Works for parking lots and pathways
- Finance, Human Resources, Information Technology and Security as support services
- Public Works and Environmental Services for water services management.

The main groups in the delivery of facility management within the City that were included in the scope of this audit are:

- Facility Operations Services (FOS);
- Water Services; and
- OC Transpo.

The number of full-time equivalent (FTE) positions in facility management across the three groups is as follows:

Table 1: Number of full-time equivalent and facilities across FOS, Water Services and OC Transpo

	FOS	**Water Services**	**OC Transpo**
Number of FTEs	549	121	153
Number of facilities	875	128	68

Facility Operations Services under the RCFS department provides centralized operations and maintenance of the City of Ottawa's facilities including the operation, maintenance, and repair of all facilities (850 facilities 9.4 million square feet, including ambulance and fire stations, equipment garages, storage buildings, salt domes, day care centres, recreational and sport complexes, shelters and long term care homes). Activities include, pool and arena operations, 24/7 Emergency (on call) coverage, and facility client services (program and special event support).

Water Services located in Public Works and Environmental Services is responsible for:

a. Drinking Water Services: responsible for providing quality drinking water to the City's residents using a water supply system comprised of two Water Purification Plants (Britannia and Lemieux Island), six communal well systems, and a large network of pipes, pumping stations, storage facilities, valves, fire hydrants across the City.
b. Wastewater Services: responsible for the operation of the City's wastewater collection and treatment systems, which include the City's Treatment Plant known as 'Robert O. Pickard Environmental Centre' (ROPEC), and a network of over 5,800 kilometers of sewer pipes, 67 pumping stations and several odour control facilities.

OC Transpo, through its Transit Fleet Facilities and Maintenance unit, maintains 68 buildings servicing OC Transpo administration, customer service, and bus operations. OC Transpo's, Rail Operations unit, maintains buildings servicing rail operations. Activities include: operation, maintenance, repair and minor construction for office buildings, garages and bus shelters as well as maintenance of equipment such as hoists and lifts.

Reorganizations

The facility management function, and the various groups that facility management interact with, have undergone multiple reorganizations, as follows:

Prior to 2009:

- Facility Operations was part of the Real Property and Asset Management (RPAM) Branch of Corporate Services. The branch included:
  - Comprehensive Asset Management;
  - Real Estate Services;
  - Program Properties Management;

  - Venture Properties – Transit and Water Services;
  - Design and Construction – this also included Accommodations;
  - Strategic Business Planning; and
  - Corporate Security.
- The functions of the current Facility Operations services were found mostly between the Program Properties Branch and Venture Properties Branch.

In 2009:

- The City underwent a large-scale reorganization where the various branches of RPAM were realigned;
- Program Properties and Venture Properties were aligned with the newly formed Parks, Buildings and Grounds Branch (PBG) of the Public Work Department;
- Real Estate Services became the Real Estate Partnerships and Development Office (REPDO) and was transferred to the City Manager's Office; and
- The Accommodations Unit from the former Design and Construction Branch also aligned with the new PBG Branch.

A new Environmental Services Department was created with a centralized Facilities Management group.

In 2012:

- REPDO was transferred from the City Manager's Office to the Planning Department.

In 2016:

- The Facility (Buildings) function of PBG was realigned with the newly formed Recreation and Facility Services Department. This included all operations and maintenance of facilities, Trades, Building Engineering, Maintenance Planning.
- REPDO becomes the Corporate Real Estate Office (CREO) and was transferred from Planning to the Corporate Services Department.
- Environmental Services Department was merged with the Public Works Department to form the Public Works and Environmental Services Department.

In 2017:

- Corporate Accommodations was transferred from the Public Works and Environmental Services Department to CREO under the Corporate Services Department.

In 2019:

- CREO (inclusive of Corporate Accommodations) moved from the Corporate Services Department back into the Planning Department in Planning Infrastructure and Economic Development.

Audit findings and recommendations

Audit objective 1: Assess the effectiveness of the coordination and resourcing of the Facility Management (FM) function

Integration of the FM function with all phases of asset life-cycle

The International Facility Management Association (IFMA) and the Royal Institution of Surveyors (RICS) state: "FM is about much more than the management of buildings and services – it is critical to the successful functioning of every organization which occupies property or manages infrastructure that supports our society. As a support function FM has its own objectives but it should ensure that they coordinate with the objectives of the organization it serves and other interested parties or stakeholders. There is a very clear iterative relationship between corporate objectives and resource planning, asset management and facility management."[3]

Consistent with this definition, FM involves planning and managing the life-cycle of a facility. The stages of a facility's life cycle can be described as follows: strategy and planning, facility creation or acquisition, operation or service delivery and disposal, as illustrated in the following diagram:

[3] IFMA, RICS, *Strategic Facility Management Framework, RICS guidance note, global 1st edition* (Houston, London: Royal Institution of Chartered Surveyors (RICS) and International Facility Management Association (IFMA), 2018), 8.

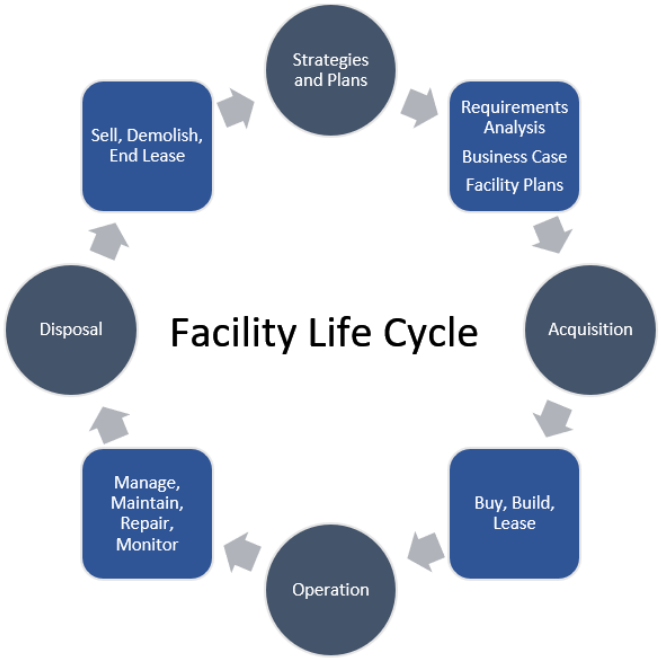


Figure 1: Stages of a facility life-cycle

The audit expected to find that facility management is coordinated across all City-wide facilities and across all stages of a facility's life-cycle. The audit expected to find that the full range of facilities management activities and services are integrated and operate under a comprehensive city-wide strategic plan and vision. This expectation is underscored by the Comprehensive Asset Management (CAM) Policy of the City of Ottawa, approved by Council in 2012 which recognizes the importance of linking FM into all stages of the asset management life-cycle and applies to all physical assets of the city, including facilities. The policy is discussed in more detail under Objective 2.

The audit found that compliance with the CAM Policy is not achieved as the FM function at the City is not coordinated and integrated across all phases of the asset life-cycle. FM activities are delivered in silos across several organizational units and departments.

Absence of a City-wide definition and guidance for FM

FM groups in RCFS, FOS and Water Services are responsible for the planning and delivery of FM activities within their respective departments. However, there is no City-wide definition of FM activities, approach to service delivery and expectations from FM. Apart from the CAM Policy, mentioned above, there is a lack of City-wide defined

policies and procedures to guide FM activities. City-wide real property related policies are limited to the following:

- Real Property Acquisition Policy;
- Disposal of Real Property Policy;
- Disposal of Real Property Procedures;
- Office accommodation Space Standard (2009); and
- Green Building Policy.

Absent from the suite of City-wide policies are FM standards, guidelines and direction as it relates to the overall planning, delivery and monitoring of FM activities. Facility related guidance is mostly related to special operating, topic specific, operating procedures developed for specific departments, for example: FOS has 42 policies and procedures which are topic specific such as: Dress Room Key Policy, Hearing Protection Policy, Pool Fouling Procedure, Safe Use of Ice Edger Machines procedures.

As a result, the approach to, and delivery of, FM activities and services is inconsistent across the City.

For example:

- Water Services is developing their asset management framework as it relates to its interactions with the Asset Management Branch (AMB). There is no similar asset management framework that has been developed for FOS or OC Transpo.
- FOS is in the process of drafting a vision and strategy for the delivery of its FM services (begun in late 2019 as part of the implementation of the OAG recommendation arising from the Audit of Recreation, Cultural and Facility Services Department – Management Processes). There is no similar exercise that has occurred with OC Transpo's FM group.
- FOS has a policy on preventive maintenance management while OC Transpo and Water Services do not have a similar policy.
- Financial thresholds for funding of capital life-cycle replacement varies among, FOS, OC Transpo, Water Services and AMB.
- Ottawa Police Service manages its own design and construction with consultation from Asset Management on asset management planning, design and construction activities, which is a different approach to other areas of the City.
- FOS work orders capture all work performed in facilities, including planned and unplanned maintenance activities. Emphasis is placed on a rigorous preventive maintenance program to maximize the reliability, performance and life-cycle of

building systems and equipment; while OC Transpo work orders are predominantly focused on corrective maintenance, where work conducted by the facility group is reactive and unplanned to address equipment and system failures and breakdowns.

The lack of central definition and guidance results in inefficiencies, increased costs and varying standards in FM delivery and preservation of the facilities.

Integrated Planning Framework not in place

The audit observed that components of an integrated planning framework, throughout all levels of FM strategy, are missing or not fully developed. (The planning framework is discussed further under Objective 2). A key aspect of FM is understanding the short-term and long-term plans of the City and its programs and integrating that understanding into the short-term and long-term planning of facilities. The audit found that this integration of plans does not occur. Management commented on the need for greater strategic planning in order to guide prioritization of FM activities and investments. Current decisions on priorities of activities and investments are undertaken without strategic context and, as a result, may not result in best value to the City and taxpayers.

There is an absence of clear ownership over the management of facilities

A facility is complex and consists of several integrated systems requiring operations management, maintenance management, utilities management, project management, quality management, risk management and life-cycle management. Decisions made in these management areas are interrelated, impact each other and, as a result, need to be managed in an integrated and cohesive manner.

The audit found the current approach to FM is siloed with different organizational units under different departments involved in FM activities and with no single group that is responsible and accountable for the facility and ensuring integration and cohesiveness. The result has been a lack of clarity in accountability for facilities and actions that are not cost-effective.

The absence of clear ownership is a sentiment echoed by managers during the course of the audit. It has also been formally identified as a finding by both AMB and Water Services as part of their initiative to transition asset management activities from Water Services to AMB.

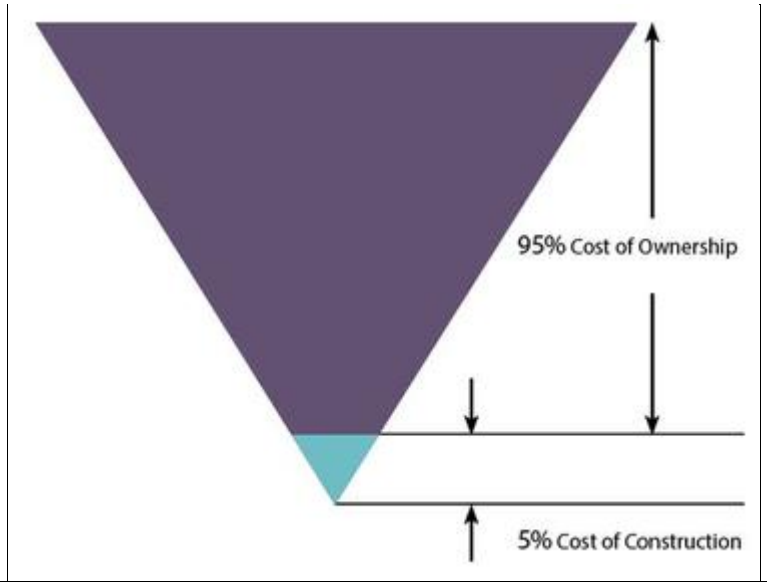
The siloed approach to FM has negatively impacted the visibility of facility costs, integration of repairs and capital, knowledge of facility condition, monitoring and evaluating the performance of facilities; resourcing the FM function and evaluating facility performance and risks.

Lack of visibility of FM costs

Total cost of ownership is the “summation of all known and estimated costs to include first, recurring, renewal / replacement, and end-of-useful life costs revised at critical decision points to aid in life-cycle asset management decisions”. The following diagram provides an overview of total cost of ownership:

Figure 2: Association of Physical Plant Administrators total cost of ownership framework

Industry data indicates 5% of the facilities life-cycle cost is represented by the cost of construction and 95% is represented by the cost to own the facility, once constructed, as indicated in the following diagram:



The total cost of ownership as it applies to the financial bottom line over the life of a building.
Source: U.S. Federal Facilities Council Technical Report No. 142

Figure 3: Relationship between cost of facility construction and cost of facility ownership

The audit found that the total cost of ownership of City facilities is not managed and could not be provided when requested by the audit. To obtain full cost of ownership of a particular facility or portfolio of facilities, data must be requested from multiple organizational units. Management expressed a lack of confidence in the accuracy and completeness in the data that would be obtained through this approach. The impact of not managing the total cost of ownership of a facility is very significant to the municipality as an understanding of the total cost of ownership is necessary for decision making at various stages throughout a facilities life. For example:

- Evaluating options for bringing an asset into service by understanding the total cost over the life of the asset under each option;
- Assessing the impact of FM activities over the life of the facility, for example, the impact on future cost through replacement of energy, utility, and safety systems; continual maintenance of the facility; and updates to design and functionality; and recapitalization costs;
- Evaluating the impact of initiatives, for example, utilities management initiatives, on the cost of operating the facility;

- Comparing the cost of ownership among City facilities and analyzing variances in costs;
- Determining whether further investment in a facility outweighs the benefits in keeping the facility; and
- Assessing whether program revenue generation is sufficient in relation to the cost of owning the facility.

Without a full understanding of the total cost of ownership, a municipality risks having insufficient funds to continue operation of the facility and preserve the life and investments made in the facility. The audit found that sufficient funding does not exist to properly maintain facilities and deliver required level of service, as further detailed under Audit Objective 4.

Resourcing of FM (operations and maintenance) not optimized

The siloed nature of FM prevents cross-departmental resource analysis and allocation from being performed. However, there is no attempt to utilize resources from other groups. For example, each facility group has their own trades group. If additional resources are required, the facility groups will typically procure through existing contracts. This increases the risk of a costlier approach to providing FM activities and services as the use of available internal resources may not be optimized, as well as the risk of gaps in the provision of services.

Integration of repairs and capital requires improvement

The audit found that the overall level of integration between facility management groups and Asset Management is not cost-effective in ensuring appropriate integration between capital and repairs and maintenance.

The siloed nature of FM and life-cycle management was evident throughout the audit. The examples below represent situations where decisions are made without a corporate-wide focus:

- AMB is not always aware of the repairs and upgrades undertaken or planned to be undertaken by the facility groups. Likewise, the facility groups are not always aware of the capital work that AMB plan to undertake. This issue was identified during the course of our interviews with the lack of integration between repairs and capital work discussed further under Objective 3.

- There is no mechanism that adjusts funding in the facility groups to take into account the change in operating, repairs and maintenance costs brought about by new facility components installed by AMB.
- AMB regularly delays the replacement of a building component, this results in facility groups having to incur greater repairs and maintenance costs on those components, until they are replaced. This is evidenced by the 2,100 life-cycle events valued which were deferred from 2020 into future years and also evidenced from the very high value of deferred maintenance over a number of years that has been identified in the facilities.
- Facility groups reducing the repairs and maintenance on a component, resulting in earlier component failure which impacts on AMB life-cycle replacement. This is evidenced, for example, by the estimated deferred repairs and maintenance by FOS of approximately $500K in 2019 which went unfunded. This results in required maintenance not being performed which will impact on the timing of life-cycle replacement by AMB.
- Asset Management is responsible for undertaking building condition assessments (BCA). The BCAs exclude repairs and maintenance requirements because these items are not funded by AMB but, rather, are funded by the facility groups.
- Facility groups are not fully aware of results from BCAs and are unaware of the replacement costs of the assets in their portfolio. This makes it difficult to determine the level of repairs and maintenance funding required on facilities as a key metric in determining the funding level as a % of replacement cost and the timing of life-cycle component replacements.
- Asset Management will fund life-cycle replacement of components “Like-for-Like”. Upgrades must be funded by the respective facilities groups or the programs. This results only in funding of the replacement of components to a standard that might have been in place in the 1950’s for some facilities, but which may no longer be the standard for today.
- Asset management will fund the like-for-like components that have a higher total life-cycle cost, and lower initial cost outlay, rather than an upgrade in a component that might have a higher initial cost outlay but provides savings over the useful life of the component such that the total life-cycle cost is lower.
- Accommodation and leasing activities do not take into account space available in recreation facilities which could result in reducing the amount of space which is leased from external parties. A review of other municipalities identified an

initiative by the City of Sudbury to optimize office space. This resulted in savings to the City of Sudbury of $193K.

- Facility life-cycle replacements are significantly underfunded such that life-cycle replacement is oftentimes a negotiation among AMB, facility groups or Programs or a combination of all groups depending on which groups have budgets available. This approach to funding facilities is reactive and not based on planned funding strategies.
- Deferred maintenance calculations by Asset Management does not take into account work undertaken/not undertaken by facilities groups.

Facility condition not fully known

The audit noted that the City does not have full knowledge of the condition of assets and the amount of maintenance that has been deferred and not completed. This is further described in Audit Objective 4.

Performance of facilities inadequately monitored, and risks not fully assessed

Currently there is no single department in the City that can address and report on the performance and risks of City-owned facilities. Performance management and risk management frameworks for the management of facilities are not developed. Performance assessments are adhoc with no clear performance measures or targets defined. Risk management is not conducted in sufficient depth to understand and fully mitigate risks in the facilities. This is further described in Audit Objective 5.

A single department that can address and report on the performance and risks of City-owned facilities is important in ensuring that: facilities function as intended and deliver effective workplaces and services; cost-effective decisions are made; and risks are mitigated.

Recent efforts to integrate

There is recognition within the City of the need to more fully integrate and centralize facility-related activities. Recent initiatives include:

- AMB and Water Services initiative underway to define roles and responsibilities and to transfer asset management activities from Water Services over to AMB. Management informs us that while AMB and Water Services are looking to transfer accountability (responsibilities to be shared) the main goal is to do it in a more comprehensive manner. Additional resources are required to make these improvements.

- CREO was recently reorganized under the Planning, Infrastructure and Economic Development Department (PIED) from Corporate Services.
- Accommodations Planning moved from Corporate Services to PIED.
- The Corporate Energy Management Office (CEMO) was created, in 2019, to centralize utilities analysis under Supply Services.

Other municipalities

The audit reviewed the approach to FM delivery in several Canadian municipalities. The audit noted recent moves towards centralizing FM functions under one department for the municipalities of Toronto, Winnipeg, Mississauga and Calgary. The municipalities recognized that centralization of the FM function enables planning for facilities to align with municipal strategies, increased cost-effectiveness in providing FM services, the identification of cost reduction opportunities, the ability to realize economies of scale and the ability for continuous improvement and innovation.

Conclusion

FM activities transcend several management areas: facilities operations, maintenance, utilities, project delivery, quality assurance, risk, life-cycle renewal and real estate. Decisions regarding these management areas are interrelated and impact each other. The current siloed approach to FM does not permit the appropriate integration of these management areas. This results in inefficiencies, increased costs, and increased risk of asset failure and program interruptions.

The City has a very large inventory of facility assets that provide a variety of services. Data is collected on an ongoing basis and is entered into asset management data system so that the City can identify needs and associated costs. Management acknowledges that there is need for more and better-quality data and are continually improving.

The lack of coordination in FM activities also results in the City being unable to answer the following key questions about its facilities:

- What is the facility condition?
- Does the City need the facility; and, if so, for how long?
- What investments need to be made in the facility?
- How much money is needed?
- When do you need to make the investment?

The inability to answer these questions results in short-term and reactive approaches to managing facilities which is more costly in the long-run.

Recommendations

Recommendation 1 – Integrated FM function

The City Manager should review the organizational and governance structure to ensure it supports an integrated City-wide facility management function.

Recommendation 2 – Policy and guidance

The City Manager should establish a City-wide framework for the facility management function with guidance in the form of vision, mission statements, policies, standards and guidelines.

Contravention of Ontario Building Code

In 2020, the City commissioned a consulting firm to undertake a preliminary building capacity assessment of three administration buildings Ben Franklin Place, 100 Constellation Crescent and 110 Laurier Ave. The assessment was to provide updated figures on the occupancy load in the three buildings. In addition to preparing the occupancy report the consulting firm also reviewed the washroom capacities on each floor of the Administration Buildings to determine if they meet the current occupancy loads. Based on the study's preliminary assessment, the conclusions are as follows:

1. At the Centerpointe Facility, 3 floors are overpopulated by a total of 61 occupants. Floors two and three have fewer washrooms than required by code.
2. At the Constellation Facility, many of the floors are overpopulated based on the Ontario Building Code (OBC) requirement for Occupancy Loads. In total, the facility is overpopulated by 985 occupants. Washrooms, however, are in accordance with the OBC requirements on most floors. Floors 3 to 9 appear to have one fewer male water closet than what is required based on the OBC code requirements for the floor occupancy and floor plate calculations.
3. At the Laurier Avenue Building (City Hall), 4 floors are overpopulated by a total of 41 occupants. There are not enough washrooms on each of the floors of the facility according to the OBC requirements.

Conclusion

The preliminary results from the study indicate that the City is in contravention with the Ontario Building Code in 3 of its facilities. One facility is significantly over-accommodated while 3 facilities have fewer washrooms than required. Over-accommodating a building puts occupants' health and safety at risk in the event of a fire as it can restrict the ability to exit the building. The consequences of over-accommodating a building can range from fines to building closure. Fewer washrooms than required also puts occupants' health and safety at risk caused by the inability to access washrooms when required. The consequences of fewer washrooms are that the City is unable to accommodate additional employees on the floors that already have fewer washrooms.

The audit was informed by the City that they have been aware of a problem with overaccommodation and washrooms at Constellation since 2013. Management informs us that FOS is currently supporting CREO on the development of a strategy to manage building occupancy issues within the administrative facilities.

Recommendation

Recommendation 3 – Compliance with the Ontario Building Code

The City Manager should identify and implement necessary actions to regain compliance with the Ontario Building code as it relates to the identified 3 facilities.

Roles and responsibilities

The audit expected to find roles and responsibilities relating to FM clearly defined, communicated, and understood. The audit found while documents such as departmental mandates, CAM and Project Charters define roles and responsibilities at a broad level, that roles and responsibilities are not clearly defined, communicated and understood as they relate to overall city-wide FM including interaction with Asset Management, Design and Construction and CREO and with respect to agreements with 3rd parties.

Funding of Facility O&M and life-cycle renewal

Roles and responsibilities are not clearly defined as they relate to facilities management interaction with the Asset Management Branch (AMB) regarding operations & maintenance (O&M) and capital requirements of the facilities and nor is it clear which organizations will fund O&M and life-cycle renewal. The delineation of what a particular

group will pay is largely determined by financial thresholds (refer to Objective 3 for threshold levels) and budget availability. The audit found that AMB has thresholds in place to assist with determining the share costs between departments (FOS, Water Services and OC Transpo) and AMB for life-cycle renewals. However, the audit noted that there is a lack of understanding of the use of thresholds which govern what the facilities management groups (FOS, Water Services and OC Transpo) will pay for and what AMB will pay. This is discussed further under Objective 3.

Project delivery

Lack of clarity with respect to project delivery responsibilities of FOS vs. D&C. Criteria are not in place that provide guidance as to what projects D&C will undertake and which ones FOS will undertake. FOS recently agreed with AMB to undertake additional projects, partly to avoid project management fees from Design and Construction Branch. The avoidance of D&C fees allows for more money to be available to undertake projects.

When FOS undertakes projects, it means that the project management framework of D&C is not applied to these projects. This can result in lack of appropriate oversight on the projects increasing risk of project failure and/or unforeseen project costs.

Quality management

The audit also observed that a quality management function, as it relates to projects undertaken in facilities, has not been implemented. The audit was informed that a robust quality management function exists for the linear infrastructure assets but not for facilities. At the time of the audit, ISD was in the process of developing a quality management framework for facilities including plans to conduct gaps analysis and define roles and responsibilities.

The absence of a quality management function for project work undertaken in facilities increases the risk of project deficiencies. This can affect facility repairs and maintenance and capital requirements and significantly increase the cost of the facility throughout its life-cycle.

Water Services

In 2019, Water Services Division and Infrastructure Services Division (ISD) began an Asset Management Initiative to develop a comprehensive and consistent asset management approach and planning for Water Services under Asset Management Branch (AMB). This initiative includes clarifying roles, responsibilities and

accountabilities between ISD and Water Services and aligning resources where expertise and knowledge provides the most value and capacity. *"Management informed the audit that the comprehensive approach mentioned above speaks to the entire plant or pumping station not just the building or roof. It can be challenging to differentiate between the facility and the process for Water Services. For example, HVAC is part of the process in most areas and needs to be managed with the rest of the assets."*

This initiative recognizes that there is:

- An increased risk of unexpected and major water/wastewater system or facility failures; and
- Water Services is at a critical point where investment in facilities are required along with a more structured and formal approach for the asset management Water Services assets.

Accommodation management

The Accommodation Branch is responsible for furniture moves, reconfiguring of spaces, procurement of furniture, redesigning space in existing office and program space (e.g. community centre space), monitoring occupancy load and vacancies in City facilities except for Ottawa Police Service, Libraries and, where they have their own accommodations staff.

The audit found that:

- There is no City policy that states that Accommodation Planning must be used. Consequently, organizational units have undertaken their own accommodation projects. This increases the risk that accommodation projects are undertaken without the required expertise in accommodation. This can result in increased costs, sub-optimal workplace solutions and violations of the Ontario Building Code.
- The importance of engaging the expertise of Accommodation Planning in accommodation projects has not been well communicated.
- There is a lack of processes and governance indicating when to engage Accommodation Planning to provide accommodation services. Processes and procedures ceased to exist once the RPAM model was dissolved.
- Accommodation Planning does not have a complete assessment of vacant workspaces in City facilities.

Staff interviewed indicated that the lack of clearly defined roles and responsibilities, lack of communication and lack of understanding of how and when to engage certain groups in FM related activities is an issue that is causing waste and difficulties in the management of facilities. The audit found that:

- Facility groups and AMB involved in the delivery of facility related activities are not formally brought together for the delivery of the function; and
- Activities are based on relationships that have been developed over time and not based on formal processes for undertaking FM activities.

An absence of clearly defined roles, responsibilities and lack of communication and understanding is due to FM activities being decentralized under multiple departments without the necessary integrated processes required for the delivery of these activities. This results in the inefficient deployment of staff and other resources. The creation of gaps in roles and responsibilities also can result in project risks, health and safety issues not being addressed, non-compliance with legislative requirements and increased liability to the City from roles and responsibilities not properly carried-out.

3RD Party Agreements

The audit reviewed a sample of commercial rental agreements, where the City permits 3rd parties to use a facility (or a portion thereof) to carryout specific activities of the 3rd party, 3rd party leases where the City leases space from a 3rd party, and P3s where there is a shared responsibility with multiple stakeholders. We found that agreements can be lacking in clarity. Management indicated that there are several such agreements in place. Specifically, the audit found that:

- Terms and conditions of agreements are not always clearly defined with respect to roles, responsibilities and obligations of stakeholders to an agreement.
- There is no standardization of the terms and conditions of the agreements or standard template that addresses areas such as roles and responsibilities, dispute resolution, short-term and long-term life cycle renewal plans.
- Both AMB and FOS are not always aware of the agreements in place, and for the agreements that they are aware of, they don't always have complete details of the terms and conditions in the agreements.
- Key stakeholders, such as AMB and FOS are not asked by CREO to input into the drafting of the terms and conditions on a timely basis such that negotiations with 3rd parties can be influenced by the input of AMB and FOS.

The impact of a lack of clear terms and conditions in 3rd party agreements and the lack of input from AMB and FOS creates risk of:

- Increased confusion and disputes among parties;
- The inability to enforce the terms and conditions of the agreement;
- Gaps and duplication in FM activities;
- Undertaking activities that other parties to the agreement should be undertaking; and
- Rents and other consideration not being set at the appropriate amounts.

These result in an inefficient use of City funds and resources and impact on the overall cost and value-for-money to the taxpayer. This is illustrated in the following examples:

Example #1 (City leases space to a 3rd party):

- City owns the facility and the 3rd party has exclusive use of the facility and allows access to the parking lot from May 1 to September 30 each year for the public to park when using city parks and facilities located in the immediate area;
- The 3rd party pays a nominal $1 per year in rent since 2013, and the City is responsible for paying all municipal taxes;
- 3rd party is fully responsible for all capital, operating, maintenance and utility costs for the entire property;
- The City is to complete building audits and a lifecycle plan every ten years and to provide each audit and plan to the club for review and action; a building audit has not been completed since 2008;
- The 3rd party has the option to re-take title/ownership of the facility for a nominal cost ($2.00) with thirty days' written notice to the City;
- The 3rd party is requesting that the City finance a roof repair because of the COVID crisis; and
- No term in the agreement, the agreement appears to be in perpetuity.

Example #2 (City leases space to a 3rd party):

- City owns the facility and the 3rd party has exclusive use of the facility;
- In 2010, the 3rd party requested financial assistance for roof repair as their reserve fund was insufficient to cover the whole cost; at the time, the 3rd party had an 18 year Purchase of Service Agreement in place (1999-2016) with the City where they were responsible for all costs associated with the leased space, including lifecycle improvements;

- 2011 – The City paid a portion of roof repair costs to assist the 3rd party;
- 2012-2016 – City and the 3rd party entered into an amending agreement to the 1999 Purchase of Service Agreement that outlined a five-year repayment schedule that was completed at the end of the term of the Purchase of Service Agreement; and
- 2017-2021 – When the Purchase of Service Agreement expired the City and the 3rd party entered into a new Lease agreement whereby the City is responsible for lifecycle improvements and the 3rd party pays a base rent per square foot and is responsible for all operating and maintenance costs.

Example 3 (City leases space from a 3rd party):

- Approximately $2M was spent by the City over the past 16 years on life-cycle projects on a facility owned by a 3rd party.
- Life-cycle projects included: heating system improvements/boiler replacement, HVAC replacement, roof replacement; elevator modifications and rehabilitation, window and frame replacements, interior lighting replacement;
- The City pays a base rent for the property in the tens of thousands of dollars per year.

Service Level Agreements

Service level agreements (SLAs) are an industry standard supported by organizations such as IFMA. They are statements about quality, quantity, and timing relevant to end users. SLAs provide the basis for decisions on staffing levels, resourcing of services to be provided, staff training, and ultimately the cost of the service.

Establishing levels of service is an important part of defining roles and responsibilities. SLAs, whether for internal or external stakeholders, should constitute the expectations for performance between the service provider and the customer. SLAs should include the communication process between parties, the staffing and service hours and the costs to be charged for services.

A review of City's Comprehensive Asset Management (CAM) Framework approved by Council in 2012, indicates that levels of service are a requirement of the City's Strategic Asset Management Plan. The audit found that the City is not in compliance with the CAM Framework as SLAs and levels of service for FM are not in place for most facilities. We also found through our interviews that some facility managers were unsure if SLAs were in place and that some clients felt the need for service level agreements.

SLAs are largely absent because of the decentralized nature of FM activities and no single group being responsible over FM activities in a facility.

An absence of SLAs results in:

- The inability to properly resource the FM function to ensure appropriate staffing;
- Lack of clear roles and responsibilities and duplication and gaps in FM activities;
- Inconsistent service delivery resulting in overuse/underuse of FM resources;
- Inability to assess whether facilities are maintained at an acceptable and consistent standard;
- Increased cost of the service; and
- Inability to assess value-for-money received from FM services.

Management informed the audit that the CAM Framework is based on continuous improvement practices. The service levels in CAM are focused on the services provided to the public. Per the CAM Framework and in accordance with O.Reg. 588/17, service levels will be addressed through the Service-Based Asset Management Plans.

Conclusion

Overall, there is considerable room for improving the definition, understanding and communication of roles and responsibilities relating to FM and to set expectations through defining levels of service. The audit found that roles and responsibilities relating to FM are not clearly defined, communicated, and understood.

Recommendations

Recommendation 4 – Roles and responsibilities

The City Manager ensure clear definitions of roles and responsibilities as they pertain to all FM activities. Processes and procedures should be developed to support the roles of various stakeholders involved in FM, including clear criteria as to when Design and Construction should be involved in a project.

Recommendation 5 – Quality management

The City Manager should ensure the continued development of a City-wide quality management function for project work undertaken in facilities as soon as possible.

Recommendation 6 – 3rd Party Agreements

The City Manager should ensure the inclusion of key stakeholders (such as AMB and FOS) in the drafting and review of terms and conditions of 3rd party agreements and ensure that terms and conditions are clearly defined and communicated to all stakeholders.

Recommendation 7 – Service levels

The City Manager should develop detailed levels of service expectations supported by service level agreements for the facility management function.

Allocation of resources

The audit expected to find that there is an appropriate allocation of inhouse and contracted resources and that the use of resources in FM is adequately planned.

Strategy for delivery of the FM function

The audit found that there is no strategy for the resourcing and delivery of FM services. A key function of a service delivery plan or strategy is to allow planning of resources required to undertake routine services, projects, and emergency response.

Reviews of resourcing requirements have been informal and conducted on an adhoc or one-off basis depending on the need to resource immediate pressures in the management of facilities. While facility analysis has been undertaken in FOS, it is either dated, focused on a select number of facilities or incomplete. We were informed during the audit that FOS did not have a formal resource or service delivery plan in place and that FOS was planning to develop a 1 to 3-year plan.

There has not been a review of the optimal model, including the possibility of outsourcing aspects of FM, for service delivery of the FM function and the resources required to deliver facilities management services.

Delivery strategies are primarily left up to front line staff, e.g. facilities supervisors. In general, internal trades (for example, electricians and plumbers employed by the City) are usually given the first priority. Facility supervisors generally have the flexibility to decide whether to use trades or go out to contract. There is no plan in place to guide the use of inhouse vs. external resources. Our analysis of FOS work orders showed

that there is a higher trades usage occurring in areas close to trades shop proximity while higher use of contracting occurs in areas further away from trades shop.

While contracts entered with suppliers were based on the anticipated needs and past experience in contract requirement, there is no procurement plan or procurement strategy in place that links FM requirements for contracted services with broader resourcing and FM strategies supported by cost benefit analysis. At the time of the audit, FOS could not provide information on the total amounts spent by each contract on FM in FOS managed facilities.

The audit also observed practices in the City of Mississauga and the City of Winnipeg:

- City of Mississauga has a contract management group within their facility management organization that procures, manages and audits contracts. The contract management group also assesses whether facilities management should turn to external contractors or whether the work should be undertaken by inhouse resources. The contract management group also validates the work to ensure it is completed in accordance with the requirements of the contract, for example, the contract management group is required to sample 5% of inspections to ensure contract work has been properly completed.
- City of Winnipeg stated the use of internal vs external contract resource is almost entirely driven by prevailing market conditions (i.e. the availability of resources in the market and the cost of the resources) and is reviewed on a recurring basis.

The audit also observed that:

- FOS has been asked by AMB to take on more project management activities on behalf of Asset Management, yet there is no formal strategy of how these additional activities will be financed.
- Concerns exists within FOS and clients regarding the appropriateness of resource levels across geographical areas as some areas may be more resourced than others.
- Water Services, with the help of a consulting firm, did undertake a review of Water Services gaps, but this was not a detailed review. The opportunity to transfer life-cycle management to AMB was identified as a result of the review. AMB has been working with Water Services to affect this transfer.

The consideration of outsourcing aspects of FM is an industry practice that has resulted in significant outsourcing arrangements as observed in Public Services and Procurement Canada, Shared Services British Columbia and Infrastructure Ontario.

At a municipal level, the City of Toronto is in the process of developing a service delivery strategy which is expected to be presented to Council in 2020. This service delivery strategy is to take into consideration outsourcing of aspects of the FM function to external service providers.

The following municipalities have also identified facility outsourcing as opportunities to augment the cost-effectiveness management of facilities:

- City of Toronto - based on the information provided by the City and previous studies conducted, the City of Toronto has estimated that there is approximately 5-10% in annual cost savings that could potentially be achieved through a combination of process improvement, outsourcing and portfolio optimization initiatives;
- City of Winnipeg – asset management plan indicates exploring options for outsourcing;
- City of Brantford – service review identified estimated capital and operating efficiencies of over $500K per year; and
- City of Greater Sudbury – service review identified opportunities for cost savings through outsourcing management of facilities to third parties.

At the federal level, Public Services and Procurement Canada (PSPC) property management, project delivery, facilities management, and professional and technical services for the office portfolio are carried out using a balance of in-house expertise and third-party service providers. From 1998 to 2015 PSPC estimates total savings from outsourcing to third-party service providers to be $702 million. There are strong indicators that outsourcing should be considered in strategic areas of FM at the City of Ottawa as there is potential for cost savings and enhanced service delivery.

The absence of an appropriate review and strategy of allocation of inhouse and contracted services is due to:

- A lack of central focus on ensuring value-for-money in the provision of the FM function. The authority over the FM function is siloed and has been delegated to many groups. As a result, there is no cross-departmental resource analysis and allocation that occurs.
- The delivery and resourcing of FM of a particular aspect of a function in one organizational unit is dependent upon the plans of another organizational unit in another department. As a result, plans are not brought together and integrated.

- A perception by some managers interviewed that City FM is complex and the required experience cannot be readily purchased in the private sector.

The lack of an FM resourcing strategy means that the City is unable to determine: the optimal balance of inhouse vs. external resource utilization of FM resources. The audit observed, for example, the use of trade groups vs. contracted resources in FOS is largely based on facility supervisors' preference and not based on analysis of cost-effectiveness.

Competency Framework and analysis

The FM function should ensure that their service teams contain the correct mix of skills and competencies to deliver the planned service. The audit found that the definition of required competency and gaps analysis is only partially undertaken:

- FOS – no formally defined competency framework exists. No formal gap analysis conducted to assess whether there are gaps in competencies and how to fill those gaps.
- Water Services – competency framework partially assessed through consulting study. But a detailed competency assessment was not conducted.
- OC Transpo – review of plant energy system license trades was completed but no gaps analysis conducted. Management informed the audit that it reviews legislation and works with the Ontario College of Trades to ensure that the work performed is aligned with the necessary licensing requirements.
- ISD– high level competency framework was defined however detailed competency requirements not defined and no gaps analysis conducted.

In addition, the audit observed an absence of succession planning as FOS, Water Services and OC Transpo do not have formal succession plans in place for staff. Succession planning is important because one of the key pillars of resourcing FM skills is identifying key roles and mapping out ways to ensure the organization has the right people with the right skills, capabilities, and experiences, in the right place at the right time.

Our analysis of succession planning in FOS indicates that FOS faces potentially significantly key personnel retirements in the next few years:

- Eight of 27 supervisors and managers are eligible to retire in the next 2.5 years. Of these, 8 are eligible to retire now with full years of service.
- Two of the four Area Managers can retire in the next 2.5 years.

- Five of the 13 Portfolio Managers can retire in the next 2.5 years.
- Nineteen of the 53 Supervisors can retire in the next 2.5 years.
- Overall, 38% of the positions reviewed have employees who are able to retire in the next 2.5 years)

Steps have been taken to help address succession concerns through the provision of training and general practices in place to ensure that all Portfolio Mangers are given opportunities for growth and experience in an Area Management position. The same opportunity to backfill more senior positions and take on stretch assignments is offered throughout all levels in the service. Also, mandatory training for all positions is required within FOS. The audit observed that approximately 75% of the mandatory training has been completed by staff.

Conclusion

The absence of defined levels of services and service delivery strategies and plans for the delivery of FM results in the City not having the assurance that it has an appropriate allocation of inhouse and contracted resources and that it is receiving value-for-money in the delivery of the FM function.

Recommendations

Recommendation 8 – Service delivery

The City Manager should undertake a service delivery review of the facility management function to identify cost-effectiveness and identify the core competencies required to effectively deliver the facility management function. This review should also consider outsourcing aspects of the facility management function and identify potential for savings through outsourcing.

Recommendation 9 – Succession plans

The City Manager should develop and approve succession plans for key positions within the facilities management function. Succession plans should be linked to vision, objectives and goals and to analysis such as gap identification, resource utilization and sourcing strategies.

Audit objective 2: Assess the adequacy of the FM planning framework

The strategic planning process for FM has seven main phases, which the facility manager should undertake:

1. Understand the program goals and corporate strategy to achieve those goals;
2. Understand the 'primary activities' of the Programs;
3. Understand how other components of the Programs and support functions are planning to meet that challenge;
4. Align the FM strategy with the corporate strategy;
5. Set out the key deliverable outcomes from the FM service;
6. Create a service delivery plan (including funding needs), which meets the required outcomes; and
7. Measure the results of the service delivery and feedback into the next round of planning.

(source: ISO41001)

The diagram[4], below, illustrates a generic robust integrated process of developing the FM strategy from the program strategy.

[4] IFMA, RICS, *Strategic Facility Management Framework, RICS guidance note, global 1st edition* (Houston, London: Royal Institution of Chartered Surveyors (RICS) and International Facility Management Association (IFMA), 2018), 10.

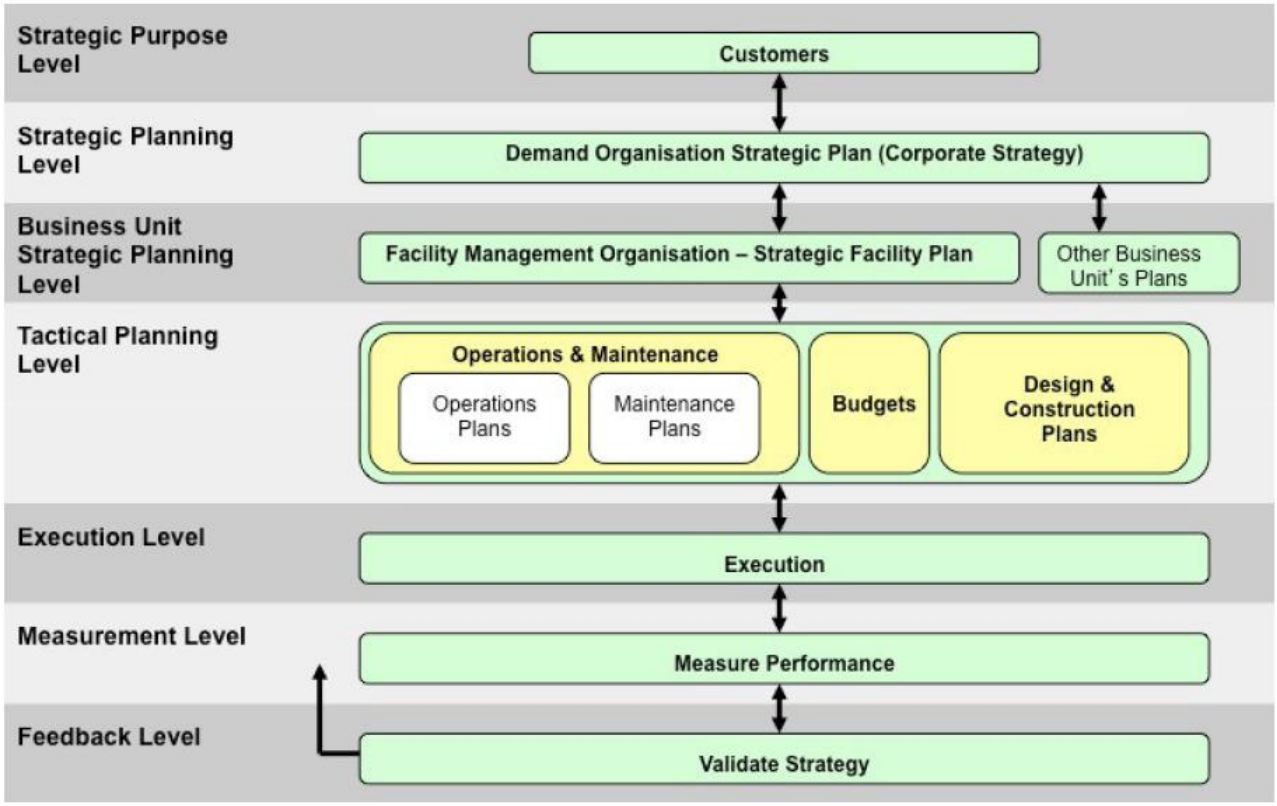


Figure 4: Integration of different levels and types of plans that impact of facilities

The audit expected to find a similar integrated process in place at the City for FM where program strategies drive FM plans on an integrated basis. The audit found that such an integrated planning process is not in place. While there are components of local facility plans in place at a building level, such as O&M and capital budgets, these exist without an overarching strategy and strategic direction for the management of facilities.

Program plans and strategies

The audit expected to find program strategies that are clearly linked to FM requirements. The audit found that program strategies are not in place and there are no processes that link program strategies with FM strategies. The audit noted that a strategic group (Strategic Business Planning) used to exist that was responsible for working with the program groups to rationalize buildings, rationalize projects and undertake whole life costing on buildings and on facility projects to ensure investments are based on value-for-money. This group no longer exists and, as a result, there is a void in the identification of program strategies and understanding facility requirements

and inputting this information into the management of facilities. This is apparent as follows:

Water Services

Water Services has acknowledged as part of their recent Asset Management Initiative that their approach to asset management, inclusive of FM, has been piecemeal in nature without a comprehensive and forward-looking strategy in place. They are currently working with AMB on a more integrated approach.

Recreation, Cultural and Facility Services (RCFS)

The audit observed the following initiatives underway within RCFS that will impact on FM:

- The challenges of aging infrastructure, decreased demand and a changing landscape of sport has prompted a review of City of Ottawa indoor arenas. A framework and roadmap for conducting the review has been developed.
- Staff are currently developing a project charter to initiate the Parks and Recreation Facilities Master Plan project, which will be led by RCFS. The purpose of the project will be to determine the park and recreation facilities that will be required to serve the current and future recreation needs of the City's residents.

OC Transpo

The audit noted that there is no program strategy for OC Transpo that guides FM strategies.

Strategic facilities plan

The audit expected to find strategic plans that provide direction and guidance to the management of facilities. IFMA also defines the strategic facility plan as: *"a two-to-five-year facilities plan encompassing an entire portfolio of owned and/or leased space that sets strategic facility goals based on the organization's strategic (business) objectives. The strategic facilities goals, in turn, determine short-term tactical plans, including prioritization of, and funding for, annual facility related projects."*[5]

[5] IFMA, *Strategic Facility Planning: A White Paper* (Houston: International Facility Management Association (IFMA), 2009), 5.

Strategic facilities plans would:

- Link organizational needs to FM strategy;
- Identify gaps and options for addressing gaps;
- Provide facility cost projections and life-cycle cost analysis; and
- Provide capacity analysis and use recommendations.

The audit did not find such strategic facilities plans in place to provide direction and guide the FM practices within the facilities. Facility managers interviewed indicated the need for such plans to be in place in order for them to manage the facilities cost-effectively.

The City does have a Comprehensive Asset Management (CAM) Framework in place that encompasses facilities, along with all other assets. However, components of the Framework, including the strategic facilities plans that would be part of the asset management plans have not yet been developed.

In 2010, the City undertook a detailed assessment to identify industry recognized asset management leading practices that could be applied to the City. Based on the findings of the detailed assessment, a Comprehensive Asset Management (CAM) Roadmap was established to address gaps required for the City to implement these leading practices and implement the components of the CAM Framework.

As part of the governance structure to guide the implementation of the CAM Framework, the City of Ottawa CAM Policy was approved by Council in 2012 and a CAM Strategy was developed in draft form, but never finalized. The CAM Policy recognizes the need to integrate asset management (inclusive of facilities) into the whole of asset life-cycle management and balancing demand for FM services with the available supply. The CAM Policy defines the key strategic comprehensive asset management documents which need to be put in place, although no timing for their implementation is provided. The audit found that implementation of the documents, as stated in the CAM Policy are largely not in place:

- *Comprehensive Asset Management Policy:* This document establishes Council's expectations around the management of the City's physical assets. It is to be approved by Council. **Status: In place and approved since 2012.**
- *Comprehensive Asset Management Strategy:* This document defines Senior Management's commitment and approach to achieving the Council approved policy. **Status: Developed in draft, dated August 23, 2012, but not finalized.**

- *Customer Levels of Service:* This document defines the level to which assets are to be maintained to achieve defined levels of service. These are to be approved by Council. **Status: Not developed.**
- *Asset Management Plans:* Document how assets are being managed through their lifecycle in support of the delivery of services. These are to be approved at the Departmental Management level for all service areas. **Status: Not developed.**
- *State of the Asset Report:* This document provides information on the state of the City's physical assets which can then be referenced when making infrastructure asset investment decisions as part of the annual budget and long-range financial planning processes. This is to be submitted to Council for information. **Status: Report provided.**

The CAM Roadmap required that all components of the CAM Framework be completed by early 2016. However, the implementation of the components identified in the CAM Roadmap have not been achieved. For example, asset management plans, level of service, succession planning, investment strategies and corporate KPIs have not been developed.

The development and implementation of specific plans under the CAM Framework has become a renewed focus with a revised CAM Road Map having been developed, but not yet approved by Council. This recent focus is largely in response to the Province of Ontario's Regulation 588/17 (OREG 588/17) (published in December 2017) which requires that asset management policies and plans be developed, as follows:

Table 2: Requirements under Ontario's Regulation 558/17, what is already in place at the City and date to be in place as per OREG 588/17

OREG requirements	**In place at the City?**	**Date to be in place as per OREG 588/17**
Strategic asset management policy	CAM Policy (approved by Council on October 10, 2012) ISD is currently in the process of reviewing this policy for compliance with OREG requirements	July 1, 2019
Asset Management Plans – Core Municipal Infrastructure Assets (water asset, wastewater asset, stormwater management asset, road, bridge or culvert;	Not currently in place Management informed the audit that service-based asset management plans are in development.	July 1, 2021
Asset Management Plans – Other Municipal Infrastructure Assets (includes Facilities)	Not currently in place Management informed the audit that service-based asset management plans are in development.	July 1, 2023

Also, as part of this recent focus, in 2017 the City developed a Strategic Asset Management Plan, which was received by Council, to describe the broad approach that the City will follow to embed overall City strategies into asset management practices, encompassing facilities as well as other assets.

The audit expected to find, as part of FM plans, an overall accommodation masterplan. The audit was informed that a comprehensive accommodation masterplan was developed approximately 20 years ago (at time of amalgamation) and has not been revisited since. The City could not produce a copy of the accommodation master plan for our review.

Tactical plans

The audit expected to find tactical plans, at a local facility level, which provide direction in the management of facility operations, as well as repairs and improvements required to each facility. The audit found components that feed into tactical plans such as: budgets, information arising from building condition assessments, annual projects to be undertaken and work assignment from preventative maintenance systems. However, the audit did not find full tactical plans that put forward a cohesive strategy to maintain the facility at a pre-defined level of performance and level of service and meeting strategic objectives over the planning horizon. Currently, FM at the City is largely focused on short-term (i.e. one year at a time) planning of operations and projects.

Tactical plans obtain direction from, and are linked to strategic facility plans, (top down) and provide valuable input to the development of strategic facility plans, as well (bottom up). They should be updated annually and can typically cover a five-year period, for example, past and current years plus three planning years. Tactical plans also include information such as:

- Strategic overview of the facility.
- Specific influences that impact on the management of the facility.
- Strategies for optimizing operations and capital projects.
- Analysis of the financial performance of the asset over past years and the planning horizon. This can include analysis of cleaning costs; O&M, energy and utilities, roads, grounds and security and administration of the facility.
- Project work plans over the planning horizon and related funding requirements. This would include input from building condition assessments.
- FM strategies to help achieve defined objectives. For example, strategies for reducing utilities costs or operating cost, strategies for promoting a productive workspace.
- O&M and capital funding requirements.
- Analysis of occupant satisfaction and levels of service achieved.
- Identification of FM strategies to address issues such an environmental management, health and safety, accessibility, occupancy load.
- Identification of key performance targets and front-line operational strategies required to achieve key performance targets.
- Trending of performance with analysis of trending patterns.
- Benchmarking with other facilities with explanation of variances.

Tactical plans are an opportunity for the groups managing facilities to demonstrate fiscal and physical due diligence over the management of the asset.

The absence of an integrated planning framework is due to a lack of a central coordinated role over the FM function. The current approach to FM has resulted in the FM function becoming siloed and dispersed across several departments. This results in difficulty in developing consistent and integrated facilities planning and strategies.

The lack of integrated planning adversely impacts on the ability to:

- Answer asset management questions such as: what do you need to do to it, when do you need to do it, and how much money do you need?;
- Cost-effectively manage facilities;
- Optimize the FM portfolio;
- Effectively react to changes in demand and requirements (e.g. decrease in ice-time bookings);
- Make effective and fiscally responsible FM investment decisions;
- Articulate demand and enable FM to meet demand requirements in both the short-term and long-term;
- Articulate and prioritize FM activities that need to be undertaken; and
- Shift FM focus from reactive to proactive.

Conclusion

The audit found that, overall, FM is not undertaken within the context of an integrated planning framework that takes into consideration facilities strategies, asset and capital plans, program plans.

Recommendation

Recommendation 10 – Integrated planning

The City Manager should develop integrated management plans for the facility function. Both short-term and long-term asset management plans that outline their needs and priorities using facility management principles. Plans should be developed at all levels of facility management and include strategic facility plans, and tactical plans.

Audit objective 3: Assess the controls that ensure operations and maintenance activities are prioritized and integrated with capital requirements

Prioritizing work

The audit expected to find the priority of FM work being determined by:

- A planning framework providing the overall strategy of where investments should be made;
- Repairs and maintenance requirements determined by preventive and corrective maintenance requirements;
- Capital priority setting methodology exists and approach is consistent across the function;
- Tracking unprioritized events and assessing the risk of these events; and
- Funding available for investment in facilities.

Priority is linked to the plans

The priority of investment into repairs and maintenance or capital projects should be guided by the City's plans for the facilities. As was stated in Objective 2, above, the audit found that priorities are not integrated with facilities' plans as components of an integrated planning framework. They are missing or not fully developed. The audit also found that strategies are not in place that guide the investments that should be made in facilities with little remaining life or facilities where work to be performed is greater than the cost to replace the facility. The audit observed that significant investments have already been made over the last 5 years in assets that have 5 years or less of remaining life and have identified the following work required to be performed:

- Project work has been identified by the City as required on 37 assets where the value of the work exceeds the cost to replace the facility. The excess of work over replacement cost is $14M.
- Project work has been identified by the City in the amount of $31.5M on 116 assets with zero remaining life.

While the above assets may be functional and justify significant investments, they may also represent areas of potential savings for the City. Strategies should be developed in order to realize savings and determine the level of funding that the City is willing to invest in these facilities.

Repairs and maintenance

The audit found that the priority of repairs and maintenance work activities are determined by a robust system, SAP Plant Maintenance Module. SAP tracks the preventative maintenance events required and provides facility staff with work to be undertaken at pre-determined intervals. The module provides work orders to staff that are repair and maintenance in nature (corrective work orders). Corrective work orders can arise through the City's service desk intake or be brought to the attention of/or identified by facility operators. A priority is assigned to the work orders by facility staff. All work to be undertaken by facility operators are entered into SAP. The work orders form the basis for the facility operator's daily workload and ensure that work orders are addressed on a timely basis. Labour and material costs are accumulated against the work order as work is completed.

With respect to FOS, clients interviewed were generally pleased with the timeliness and level of service provided by FOS in responding to work orders. Work order data produced by FOS indicates that work orders, for the most part, are completed and closed-off. The audit did observe that within FOS, 16% of work orders had no priority ranking and 11% of work orders had no costs charged against them but were closed.

The audit found that the approach to prioritizing work varies across the facility groups:

- FOS and OC Transpo priority ranking divides priorities into emergency vs. non-emergency without further priority differentiation;
- Water Services priority setting takes into consideration Activity Type, Criticality of asset and start date;
- Water Services takes life-cycle events into account while FOS work orders do not; and
- Water Services also utilizes predictive maintenance while FOS and OC Transpo do not.

The two basic types of maintenance strategies are reactive or corrective, "run till it breaks" or "fix on failure", and preventive which seeks to prevent faults from occurring.

There are varying degrees of emphasis among the groups within the City maintaining facilities on preventive work to maintain the life of building components vs. corrective work required to repair building components, without pre-defined targets for preventive vs. corrective being set.

Given the variety of types of facilities maintained (e.g. an industrial pumping station vs. an arena) and the types of operations being supported (e.g. transit services vs. in-person program delivery), some variety in the ratio of preventative to corrective maintenance may be expected or appropriate.

Table 3: Preventive versus corrective maintenance percentages and targets per organizational unit

	FOS	**Water Services**			**OC Transpo**
		Water production	**Wastewater treatment**	**Wastewater pump stations**	
Preventive	71%	33%	64%	10%	32%
Corrective	29%	67%	36%	90%	68%
Targets	No pre-defined targets set	No pre-defined targets set	No pre-defined targets set	No pre-defined targets set	No pre-defined targets set

There is some debate about what is the best method for describing deferred maintenance. Studies indicate that the preventive approach is the preferred method.

The industry standard for preventive vs. corrective maintenance is approximately 80% preventive and 20% corrective maintenance.

Capital

The audit expected to find that the decisions to replace facilities components (e.g. boilers or air handling units) that are nearing the end of their life (life-cycle events) are influenced by the importance of the facility to the City, the condition of the facility, the cost of new facility components over the entire life of the component, and the cost to replace the facility. The audit found that projects are prioritized by AMB using a prioritization tool based on the following criteria:

- Estimated Budget (Full Project Cost);
- Opportunity Associated with Implementing the Event;
- Risk of Property or Asset Damage;
- Risk of Program or Service Interruption;
- Risk of Reputation Damage; and
- Risk of Reduced Occupant Safety.

The project prioritization tool does not take into account:

- Facility priority and criticality to the programs and services delivered by the City.
- The value or replacement cost of the asset and therefore not determining priorities based on whether we should be continuing to invest in certain facilities.
- Life-cycle cost, only initial capital outlay is considered. Life cycle cost is the cost that is associated with the project from the beginning of the project to the end of its useful life of the component in a facility that is being replaced or upgraded. It includes the cost of acquiring a component, installing the component, operating it, and disposing of it at the end of its useful life.

Asset Management informed the audit that they are aware of the shortcomings of the current project prioritization methodology and are in the process of reviewing and revised their approach to prioritizing projects.

An inadequate prioritization methodology that is not linked into broader FM and program strategies and plans does not ensure City funds are spent in areas of FM that represent the best use of taxpayers' dollars and adequately preserves the remaining life of facilities.

Deferred maintenance

The definition of deferred maintenance in industry is typically stated as follows:

"The total dollar amount of existing maintenance repairs and required replacements (capital renewal), not accomplished when they should have been, not funded in the current fiscal year or otherwise delayed to the future."[6] In other words, deferred maintenance is the practice of postponing maintenance activities such as repairs in order to save costs or meet budget targets.

Deferred maintenance is an important, if not critical concept, that unfortunately is easily forgotten and inadequately addressed during tough budget cycles. The consequence of not addressing deferred maintenance is seen in later years of an asset's life-cycle

Knowledge and communication of deferred maintenance is especially important as it identifies the work that needs to be undertaken in the facilities, when it needs to be undertaken and the approximate cost of the work to the City. To prioritize the work, facilities managers need to understand the work that needs to be done and when.

[6] *Asset Lifecycle Model for Total Cost of Ownership Management, Framework, Glossary and Definitions, A Framework for Facilities Lifecycle Cost Management.*

The audit observed that the City does not have a consistent definition of deferred maintenance for its facilities and deferred maintenance amounts have not been reported to Council.

Building Condition Assessments (BCA) are a key tool in identifying deferred maintenance as well as determining and planning when work needs to be undertaken. They result in an assessment of the existing condition of a facility. BCAs are typically contracted out by the City to external consulting firms and the management of the BCA program is the responsibility of AMB.

The audit found that, while AMB targets completion of BCAs every 10 years, a consistent approach towards conducting BCAs has not been developed. The scope of BCAs has varied, ranging from capturing repairs, maintenance and capital requirements to only capturing capital requirements. AMB also noted varying qualities in BCAs prepared by consultants. The inconsistent approach to conducting BCAs results in inconsistent and incomplete deferred maintenance information being obtained.

Also, the City has not completed BCAs on all facilities and, where they have been completed, the BCAs have not been completed on a timely and consistent basis. Appendix 5 provides additional detail on BCA completion.

The audit noted that facilities under 5000 square feet in size are not assessed for condition: 530 buildings were identified that are under 5000 square feet, 274 of them had deferred needs identified ($45.5M in deferred needs) while 256 had no deferred needs identified. Included in buildings under 5000 square feet are buildings that are core to municipal services such as libraries, pumping stations, wastewater treatment facilities, health care facilities, community centres, salt domes and fire support buildings.

For those facilities where BCAs were completed, a large backlog of work identified by the BCA has not yet been validated. Validation is a process by which AMB reviews the information in the BCAs and reassesses and adjusts, where required, the timing of the work (event), estimates, scope of work identified by the consultant in the BCAs. As at the time of the audit, over 4,000 facility component replacements (events) including backlogs, identified by BCAs, are due for validation in 2021. The following table provides additional detail:

Table 4: Results of 2021 process of validating life-cycle events

2021 Validation

(Over 4,000 events including backlogs are due for validation in 2021)

Functional Areas	2021 Original Events	Add Below Cut-List	Total Events 2021
01 CULTURAL SERVICES	58	38	96
02 OTTAWA PUBLIC LIBRARY	57	57	114
03 FIRE SERVICES	149	218	367
04 PUBLIC HEALTH SERVICES	11	3	14
05 GENERAL GOVERNMENT	40	67	107
06 PARKS AND RECREATION	691	422	1,113
07 TRANSIT SERVICES	25	6	31
08 ROADS SERVICES	146	227	373
11 WATER SERVICES	6	18	24
27 CHILD CARE	23	32	55
28 SOCIAL AND HOUSING SERVICES	13	35	48
29 BY-LAW SERVICES	3	15	18
31 LONG TERM CARE	65	6	71
PARKS	**631**	991	1,622
Grand Total	**1,918**	**2,135**	**4,053**
	$152.5M	**$147.5M**	**$300.0M**

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In addition to Asset Management identifying deferred maintenance through BCAs, FOS has identified deferred maintenance as part of the annual process of identifying funding pressures. FOS identified $500K as a deferred maintenance pressure for 2019. There is no detail or analysis to support the identified pressure from FOS and the pressure was not approved for funding.

The inability to complete BCAs, assess the condition of all buildings in a consistent and timely manner, and to validate the information, impacts on the City's ability to manage deferred maintenance and to prioritize and fund work that is needed and mitigate the risk of unprioritized work. The inability to manage deferred maintenance will result in:

- More expensive investments and expenditures in the future,
- Increased health and safety hazards,
- Reduction in productivity,
- Increased occupant and customer dissatisfaction,

- Asset failure and
- Program interruptions
- Increased unplanned projects. The audit observed that over the last 6 years, approximately 467 projects (48%) have been unplanned. (i.e. components in the facilities failing) This is further detailed in the following table:

Table 5: Planned versus unplanned projects by year over 2014 to 2019

Buildings only – Number of Projects				
Year	**Planned**	**Unplanned**	**Total**	**%**
2014	77	58	135	43%
2015	60	42	102	41%
2016	78	75	153	49%
2017	97	100	197	51%
2018	79	110	189	58%
2019	107	82	189	43%
	498	467	965	48%

Replacement cost

Replacement cost is defined as the total expenditure in current dollars required to replace a facility, inclusive of construction costs, design costs, project management costs and project administrative costs. The value of property/land, however, is excluded. Knowing the replacement cost of a facility is necessary because it provides a basis for estimating maintenance and capital investment amounts required in a facility and also assists in decision-making.

The audit expected to find replacement costs that are reviewed and updated regularly. The audit found that AMB undertook an initiative to calculate replacement cost in 2008. However, replacement costs figures, for the most part, have not been updated or used in prioritizing work. At the time of the audit, there was no current approach or methodology to update the replacement costs.

Facility Condition Index

In the absence of updated replacement costs, along with incomplete deferred maintenance data, the City cannot assess the relative condition of a facility, using industry metrics such as the Facility Condition Index (FCI). FCI is an industry indicator/benchmark used to indicate the relative physical condition of a facility, group of buildings, or entire portfolio. FCI is calculated as a ratio of the cost of deferred maintenance to the current replacement cost. FCI assists the City in determining which facilities are worse off than others and therefore, warrant a higher priority requiring particular attention by way of investments or possibly sale or disposal of the asset.

Available funding

The audit expected to find FM priorities fully linked to available funding. The audit found that priorities outweigh available funding and there is no facility strategic plan or funding strategy to address the level of deferred needs and to mitigate the risks associated with the deferred maintenance.

Analysis developed by the audit indicates that the City has continually underinvested in its facilities. The average rate of investment by the City of major capital in facilities is approximately 0.5% of replacement cost, as indicated below. Industry standard is approximately 2% of replacement cost.

Table 6: Planned major capital expenditures, replacement costs and major capital expenditures as a percentage of replacement cost by year over the period 2014-2019

Year	Total planned major capital expenditures	Replacement cost (owned)	Total major capital expenditures/replacement cost
2015	$17,818,163	3,402,268,718	0.52%
2016	$20,554,989	3,402,268,718	0.60%
2017	$21,888,480	3,402,268,718	0.64%
2018	$18,453,884	3,402,268,718	0.54%
2019	$11,693,727	3,402,268,718	0.34%
Total	$90,409,243		
		Average	0.53%

The percentages, above, are likely understated since replacement values have not been recently reviewed and updated. Replacement costs were last calculated in 2008 on the majority of City facilities (the exceptions are new facilities built since 2008 which would reflect a more current replacement cost).

The audit also found that approximately 2,000 projects to replace components that are at, or nearing their end of life, at an estimated cost of $147.5M, will be deferred in 2020 due to inadequate funding.

Conclusion

Industry references provide a strong indication that deferred maintenance is growing over time. Municipal governments have seen a 10-fold growth since 1985. Deferred maintenance has become a strategic priority for Canadian universities and hospitals. Deferring maintenance is a short-term solution with long-term consequences unless additional resources are provided at a later date. The usual impact with this approach is a growth in deferred maintenance costs.

Overall, the City has inadequately prioritized the work required in facilities and has not sufficiently funded the FM requirements. This is due to a lack of strategic and planned

focus on the FM function, incomplete deferred maintenance information and the approach to FM being reactive as opposed to proactive in nature. This approach has put facilities at risk of failure, risk of program interruption due to their deterioration and higher repairs and maintenance costs during the remaining life of the facility.

Recommendations

Recommendation 11 – Priority linked to plan

The City Manager should ensure that strategies are developed, and potential savings realized, for assets where deferred maintenance exceeds replacement costs and where assets are at the end of service life to ensure clear direction is provided on investment approach and priority.

Recommendation 12 – Priority ranking

The City Manager should ensure that greater consistency and completeness in priority ranking of work orders is developed across the facility management function.

Recommendation 13 – Priority ranking

The City Manager should ensure that targets are established for the ratio of preventive vs. corrective maintenance and that strategies are implemented and monitored for achieving the targets. The targets should foster greater consistency in the ratio of preventive vs. corrective work orders.

Recommendation 14 – Priority ranking life-cycle

The City Manager should ensure that project prioritization tools consider facility importance and criticality to the programs and services delivered by the City, replacement cost and life-cycle cost in the prioritization of projects.

Recommendation 15 – Deferred maintenance

The City Manager should ensure that there is a consistent formal definition of deferred maintenance.

Recommendation 16 – Deferred maintenance

The City Manager should ensure that a consistent approach and methodology is implemented for conducting building condition assessments.

Recommendation 17 – Deferred maintenance

The City Manager should ensure that building condition assessments are completed on a timely basis and that the backlog in completing building condition assessments are eliminated.

Recommendation 18 – Building condition assessments

The City Manager should ensure that an assessment of building condition is conducted on all assets in a consistent and timely manner.

Recommendation 19 – Unvalidated building condition events

The City Manager should ensure that the backlog of unvalidated building condition assessment events is eliminated and that unprioritized events are minimized, tracked and assessed for risk.

Recommendation 20 – Replacement cost

The City Manager should ensure that the methodology for updating replacement cost be developed and that replacement cost values are maintained up-to-date.

Recommendation 21 – Available funding

The City Manager should develop strategies to manage the existing underfunding of assets, mitigate the impact of the existing underfunding, communicate facility underfunding to Council and ensure the funding of facilities at the appropriate level on a continued basis.

Integration of maintenance and capital requirements

The audit expected to find that facilities capital activities are fully integrated with repairs and maintenance. This includes integration of systems and processes as well as the assessment of facility condition on all assets.

Funding of facility work

The audit found that the overall level of integration between FM groups and AMB is not efficient and effective. The interaction is based on financial thresholds and working relationships that have been established and not based on defined processes and integrated systems. As mentioned under Objective 1, clarity is required in the definition of roles and responsibilities and defined criteria are required for guiding work funded from facility groups vs. AMB budgets.

Management were not able to locate documents that provided approval and authority of the financial thresholds by which facilities management units would fund FM projects and AMB would fund like-for-like projects. Management and staff could not explain the origin of the financial thresholds currently in place and the audit found that current thresholds are inconsistently applied and inconsistently understood among FM groups and AMB.

AMB acknowledged that a shift is needed from focussing on financial thresholds to focussing on which groups are better positioned to take on work based on risk, criticality of the work and opportunities for economies of scale through bundling. Conversations are underway between FOS and AMB to achieve this.

In addition to thresholds, AMB will fund “Like-for-Like” replacement of asset components. The audit observed that criteria to determine replacement of life-cycle components that are “Like-for-Like” are not clearly defined and documented. Also, as mentioned under Objective 1, the approach of replacement of “Like-for-Like” results in decisions to replace components that have a lower initial cash outlay, but end up

costing the City more in the long-run as opposed to upgrading with a component that has an initial higher cash outlay but lower total life-cycle cost to the City.

Systems

The audit found that the City does not have a single system that integrates life-cycle and maintenance information permitting facility groups and ISD staff to see the same information. Currently, there is no system integration between life-cycle and facility maintenance. There is heavy reliance on communication between AMB and facilities management groups such as in FOS and OC Transpo to understand the O&M and capital work completed and planned for each group. Staff in AMB do not have access to information of all repairs and maintenance conducted by the facilities management groups and vice versa.

The RIVA system is a key system used by Asset Management to track facility life-cycle and project requirements and supporting data. However, the audit found that BCA information and project information in RIVA is incomplete. The following missing information was noted in RIVA:

Table 7: Types of information missing in RIVA and number of buildings that had missing data by type of information

Information missing	Number of buildings with missing data
Building area	30
Acreage	72
Number of floors	128
Heritage	1
Year built	9
Age	9
Life remaining	9
Replacement value	5 with no data and 107 facilities with replacement value of 0

Information missing	Number of buildings with missing data
Deferred needs	320
SAP business entity	47
Property number	247
SAP business unit	289

The audit also found 10 instances of duplicate facilities information entered into RIVA.

AMB also noted that where BCAs identified deferred maintenance that were operating and maintenance in nature, there was no feedback obtained from the facilities group as to whether the deferred maintenance requirements had been addressed, further impacting on the completeness of the information in RIVA.

The audit did observe that AMB has, within the last year, focused additional resources on updating information in RIVA.

Facility condition assessments

As mentioned above, facility condition is not assessed on all assets, and where assessed, they have not been completed on a timely basis, have not been completed consistently and information has not been validated. Also, as mentioned earlier, FCI is a key industry metric to assess the relative condition of a facility. The audit could not calculate FCI on approximately 40% of the facilities due to an absence of either replacement cost or deferred cost information, or both. The calculation of FCI on the remaining 60% of facilities is hampered by out-of-date replacement costs or missing deferred maintenance information.

Without an established facility condition assessment process, which incorporates consistent criteria to be used for the assessment and which generates information that is complete and reliable, it is difficult for the City to determine and manage the condition of its facilities and the level and timing of investments required in those facilities, resulting in:

- Less than optimal decisions from a corporate perspective;
- Asset failure and program interruption;

- Misaligned investments in O&M and capital;
- Unforeseen repairs and capital expenditures;
- Adverse impact on program delivery;
- Repairs to buildings that reach end of useful life; and
- Spending on leases without full vacancy information.

Conclusion

The integration of facilities capital activities and repairs and maintenance is critical to ensuring that investments are aligned with priorities and to ensure cost-effective preservation of facilities. It is also necessary in order to reduce the risk of asset failure and program interruption. The City has not currently achieved this full integration.

Recommendations

Recommendation 22 – Integration of maintenance and capital requirements

The City Manager should develop an approach to determine which groups will fund facility management activities that are based on criteria such as complexity, risk, criticality of the work required and opportunities for economies of scale.

Recommendation 23 – Systems

The City Manager should develop integrated systems that directly link life cycle, and facilities management repairs and maintenance.

Recommendation 24 – Systems

The City Manager should ensure that building condition and project information entered in RIVA are complete and entered in a timely basis.

Audit objective 4: Assess the controls over FM funding and budget management

The audit expected to find that sufficient funding exists to properly maintain facilities and deliver required levels of service. To achieve this, the audit expected to find in place practices such as:

- Funding requirements linked to planning frameworks with annual budget process linked to O&M and capital requirements;
- Formal variance analysis with follow-up action at pre-defined intervals; and
- Deferred maintenance and funding pressures identified, and the impact assessed and mitigated.

The audit found that sufficient funding does not exist to properly maintain facilities and deliver required level of service.

Funding requirements linked to planning frameworks

Facility budgets at the City are largely rolled-over from year-to-year with little change, except for adjustment for inflation. They are not established based on facility needs that are linked to strategic and tactical facility plans. As indicated under Objective 2, above, components of an integrated planning framework are missing or not fully developed. Following are examples of instances where the budgets are not directly linked to the requirements of the facility:

- FOS divides its budget into 4 areas based on % of buildings in each area and not based on the needs of those buildings. Where funding deficits exist, funds are often re-allocated from other sources, such as surplus utilities budget, to cover any shortfall in the amounts budgeted for operating the facilities.
- The completion of capital projects involving the replacement of a component, for example a boiler, will impact future O&M costs associated with that boiler. The O&M budgets are not adjusted to reflect changes in required O&M requirements due to the completion of the capital project.
- Facilities groups are not aware of the replacement cost of the facilities that they manage. As a result, operations and maintenance funding cannot be determined based on industry standards that typically express the investment rate as a percentage of replacement cost.
- Facility groups typically are not aware of AMB capital projects beyond a 1-year planning window. As a result, the facility groups may invest in repairs and

maintenance in a component to extend the life by several years only to have the component be replaced soon after one year.

Formal variance analysis and coding accuracy

The audit found that financial variances are reviewed at regular intervals. However, the analysis could be strengthened through more in depth and consistent review. The audit observed inconsistent review of budgets and actual variances by portfolio managers and supervisors. Reviews are not always taken to a sufficient depth and with the required understanding of the root causes behind the variances. These were observations also expressed by managers during the audit.

The management of utilities cost is not fully integrated as part of FM, as these costs are not a focus of facility operators, but of a separate group, the Corporate Energy Management Office (CEMO). The audit has been made aware that there have been errors in utilities charged to facilities and that these errors went undetected by facility operators. Management have indicated that the errors have since been corrected.

The use and management of facilities has a direct relationship with utilities consumption and cost. This relationship needs to be understood and monitored by facility groups with strategies developed to reduce and contain the cost of utilities.

Efforts began in 2019 to consolidate utilities information of all City facilities through the new office, CEMO. This was a result of the OAG audit of BEEM. CEMO has indicated that their objectives include obtaining a better understanding of utilities costs and consumption and developing plans to integrate utilities management with facilities management.

Deferred maintenance and funding pressures identified, and the impact assessed and mitigated

As previously mentioned under Objective 3, above, deferred maintenance information is incomplete. AMB were unable to provide a deferred maintenance estimate to the audit as they did not have a clear definition of deferred maintenance. Based on the deferred information that was available in RIVA, which is largely based on information found in the BCAs, the audit calculated deferred maintenance on City-owned facilities to be approximately $488M. This deferred maintenance is likely significantly understated as assessment of building conditions has not been fully updated and not all facilities have had assessments. Based on information provided by AMB, the audit calculated that capital maintenance and life-cycle requirements in City facilities are projected to increase to at least $1.2B by 2030.

Based on building condition data available-to-date and comparing FCI to the Association of Physical Plant Administrators (APPA) hierarchy, there are several buildings in reactive management and crisis response.

Table 8: APPA's maintenance hierarchy and number of City facilities by facility condition index level

	APPA's maintenance hierarchy	**FCI**	**Number of City facilities**
Level 1	Showcase Facility	<5	74
Level 2	Comprehensive Stewardship	5-15	168
Level 3	Managed Care	15-29	135
Level 4	Reactive Management	29-50	82
Level 5	Crisis Response	>50	66
FCI cannot be calculated due to missing information			341
Total Facilities			866

Some of the buildings in reactive management and crisis response mode include:

- Bayview Complex: Licensing Office (Building Five);
- Cumberland Museum: Community Hall;
- Churchill Seniors Recreation Centre;
- Clyde Avenue Water Distribution Facility;
- Fire Station 36 Burn Building;
- Fire Services: Randall Dispatch Centre;
- Fire Station 63 - Constance Bay;
- Fire Station 71/Paramedic Post – Navan;
- Fire Station 83 - North Gower;
- Greenboro Pavilion Community Building;
- Goulbourn Municipal Office;
- Library: Carp;

- Library: Main;
- Library: Manotick;
- McNabb Recreation Centre;
- Mooney's Bay Complex: Terry Fox North Building;
- Nepean Sportsplex;
- Peter D Clark Centre: The Houses;
- Resource Centre: Gloucester Emergency Food Cupboard;
- Riverside Hospital Transitway Station;
- St Laurent Don Gamble Recreation Complex; and
- West Carleton Fire Training Building.

Note that FCI could not be calculated on 341(40%) of the facilities due to missing information.

The audit found that there is no overall function-wide view of facility pressures and funding requirements and consolidated view of forecasted deferred maintenance. Consequently, Council has not received deferred maintenance information.

Conclusion

Significant unfunded deferred needs exist in City facilities, however, strategies and plans to mitigate deferred maintenance have not been developed. Without full knowledge and understanding of deferred maintenance, the City is unable to develop strategies to manage the deferred maintenance. Without strategies to address the shortfall in funding, deferred maintenance will increase, and facilities will eventually deteriorate to a point where repair, maintenance or renewal will no longer be enough to maintain facilities in operation. This will impact on facility users and result in facility closures, program interruption and possibly impact on health and safety of occupants in the facilities.

Recommendations

Recommendation 25 – Funding linked to planning

The City Manager should fully identify O&M and capital requirements required for facilities, align budgets to O&M and Capital Requirements and develop strategies to address the shortfall in funding for facilities and resulting deferred maintenance.

Recommendation 26 – Variance analysis

The City Manager should implement a formalized framework and approach for a full and consistent review of variance analysis and coding accuracy of FM expenditures.

Recommendation 27 – Deferred maintenance

The City Manager should implement practices to quantify, monitor deferred maintenance and funding pressures and assess their impact. Facility Management strategies should be implemented to address deferred maintenance.

The audit expected to find that the controls over the management of facility budgets are adequate. This includes coding structures that provide meaningful information for decision making and comparison of the performance of facilities, visibility of work undertaken and budget allocations that promote optimal decisions in the use of facilities.

Coding structure allows meaningful comparisons within the City and with industry

SAP provides the opportunity for consistent coding and tracking of facilities costs and revenues. The integrated coding structure within SAP allows facility costs (O&M, minor capital and capital) and revenues to be coded against a facility. This permits the City to be able to ascertain the cost of ownership of a facility and the overall portfolio of assets. The audit found that the coding structure allows for, for the most part, meaningful information that facilitates comparison with other municipalities. However, inconsistencies have been observed in how facility expenditures are coded.

Facility managers are at liberty to create the coding structures to capture facilities costs under their responsibility as they see fit to manage their operations. The Real Estate Internal Order (REIO) is the primary cost collector for facilities operating costs. Each REIO should be assigned to a facility or a portion of a facility. For example:

- An REIO may be set up for an indoor pool to track facility costs for the pool separately so then the City can understand the facility costs behind the Aquatics Program;
- Cleaning costs may accumulate under an REIO assigned to a number of facilities because the costs cannot be easily linked to a particular building; and

- Wastewater Services does not use the REIO structure. Wastewater Services uses the Plant Maintenance module/structure.

The audit found inconsistency in how the REIOs are used. For example, one sports complex may have only one REIO even though it has multiple buildings. Whereas another manager may set up an REIO per building at a different sports complex.

The audit also found inconsistencies in the coding structure used for projects. At times, projects undertaken that impact on more than one facility do not have a proportionate share of the costs allocated to each facility.

The audit also noted inconsistent use of the coding structure as it relates to coding of costs and revenues into Profit Centres, for example:

- OC Transpo does not include capital projects in its SAP Plant Maintenance Management System, whereas FOS and Water Services and Wastewater do;
- Water Services does not code capital projects undertaken by them to profit centres, whereas FOS does; and
- Water Services has some processing costs mixed in with facilities costs because plant and pumping station costs are connected.

The audit also observed that program revenues are not consistently charged to the building level. Certain costs, for example, relating to community buildings, are not tracked at the building level.

These inconsistencies in coding of expenditures impacts on:

- The ability to understand and compare the cost of maintaining facilities;
- Facility managers' understanding of the true cost of owning facilities; and
- The ability to conduct meaningful comparisons among the facilities within the City and externally with other organizations.

Work Orders detail

The SAP Plant Maintenance Management System is a robust system that generates both preventive and corrective work orders. A significant amount of the work is completed against "standing orders" or work orders that occur repeatedly, e.g. inspections or house keeping. Standing work orders are generally never closed and carry over from year-to-year.

The audit found that the use of standing orders can limit the value of the information provided by SAP to perform analysis of the type/nature of actual work performed on

facilities, as standing orders are all encompassing in nature and do not provide details of work performed. Management has indicated that standing orders are oftentimes used for repair and maintenance activities and can, for example, distort information such as actual ratio of preventive maintenance vs. corrective maintenance.

A review of standing orders in 2019 indicated that 85% of FOS Labour and a combined 67% of labour and material were charged to standing orders. The audit noted, based on management comments, that OC Transpo initiated a move away from use of standing orders beginning in January 2020 to provide for greater transparency in the corrective work undertaken.

Budget allocation, management and chargeback of costs promote optimal decisions re: facilities

A recent City-wide review of the optimal framework for ensuring accountability in the use of facilities and office space has not been undertaken. CREO recognizes that such a review is needed to influence optimal decisions in the use of office accommodation as the cost of occupying office accommodation is not paid by the user, but rather is paid corporately. As a result, there is little incentive for departments occupying office space to reduce the amount of office space that they use.

Departments are not always held accountable for programming decisions that impact on the cost of operating and maintaining facilities and the use of accommodations. FOS' costs of operating facilities are charged to the budgets of those departments using the facilities. Departments such as Police, Library, and Public Health provide the necessary funding to FOS for the maintenance of facilities that they occupy, and FOS manages those facilities within those given budgets. While Long-term Care does not provide funding to FOS for maintenance of facilities that they occupy, facility maintenance costs are reflected in Long-term Care Program Facility Costs. This may cause an over expenditure in Long-term Care operating budgets that FOS would need to account for.

FOS receives a consolidated budget to manage the facility requirements occupied by other departments (e.g. RCFS, Fire, Public Works). For these other departments, FOS is responsible for managing the deficits and surpluses within its existing budget. The costs to operate those facilities are allocated back to the programs for reporting purposes, only.

As a result, accountability for certain costs rests with FOS without their control over the costs. For example:

- FOS absorbs increased FM costs caused by extended hours requested by the program.
- Lease revenue shortfall: $496,566 from leases with external parties that have not been renewed. As a result, FOS no longer receives the lease revenue in their budget, yet they still have to maintain the facility as it is still in operation. Examples of these are 2670 Queensview Drive and 200 Brewer Way where leases were not renewed resulting in the loss of lease revenue in FOS budget, yet FOS must still maintain the facilities.
- Increased Security Pressures: $235,675 - FOS pays for Corporate Security services of which FOS has no control over the management of resources or decision-making regarding security. The shortfall represents increased costs from the new security contract that has been put into place.
- Increased Fleet Pressures: $422,566 - Overall fleet pressures are funded by allocating budgets to users of the City fleet. FOS is a user of the fleet with vehicles allocated to FOS by facility. However, budgets are well below of what is charged for the use of the fleet resulting in FOS absorbing the deficit.

Conclusion

Controls over the management of facility budgets are not adequate as coding of expenditures is inconsistent, managers are held accountable for budgets that they may have little or no control over, and the costs and budget allocations do not always promote cost-effective FM decisions. This results in decisions being made that are not cost-effective and are wasteful to taxpayers.

Recommendations

Recommendation 28 – Compliance with coding

The City Manager should ensure full compliance and consistency with the coding required by the SAP integrated model such that full cost of ownership of facilities can be obtained and used as input into managing the performance of specific facilities and the function, overall.

Recommendation 29 – Work Orders detail

The City Manager should ensure that work orders, that are repair and maintenance related, are not charged to standing orders but are tracked as separate work orders.

Recommendation 30 – Budget framework

The City Manager should undertake a formal review of the optimal framework for ensuring the accountability in the use of facilities and office space. This should include consideration given to City-wide policy on chargebacks of FM services and aligning budget accountability to departmental units that have control over the costs.

Audit objective 5: Assess the controls that ensure the FM function is adequately supported by information, risk and performance management

The audit expected to find that information systems allow for the necessary analysis required to support the size and complexity of facilities and their operations.

A number of systems have an impact on FM as follows:

- SAPR/3R/s Accounting and Financial Reporting;
- SAP AA Asset Accounting and TCA Reporting;
- SAP PM Water Production/Treatments plants, Facilities, Road Maintenance;
- SAP RE Land Inventory;
- Riva DS Inventory and needs for Buildings and Parks;
- MAP Development tracking, road and property inventory support;
- Asset Planner Ottawa Community Housing – inventory and needs; and
- Archibus.

The SAP Plant Maintenance (PM) Module drives workflow assignment and completion of both a preventive and corrective nature. The audit found that, while there are several core systems in use, greater integration is required between systems that impact on facility maintenance (SAP Plant Maintenance Module) and life-cycle renewal (RIVA). As indicated under Objective 2, the FM function lacks integration and visibility between repairs and maintenance and life-cycle. The audit also found that the Archibus system,

which is used by the Accommodation Branch for accommodation management, is not implemented throughout all City facilities. This results in:

- Management systems not providing the City with required information to manage its facilities consistently and reliably;
- O&M decisions for maintenance not aligning with capital decisions to replace components; and
- Accommodation costs and facilities costs increasing due to the use of existing office and facilities space not being optimized.

Conclusion

Improvements can be made in the use of information systems to allow for the necessary analysis required to support the size and complexity of facilities and their operations.

Recommendation

Recommendation 31 – Information Systems

The City Manager develop and implement a strategy for the integration of facility management related systems.

The management of risk is one of the key responsibilities of a facility manager. The audit expected to find that FM risks are identified, mitigated and monitored. Facility managers are expected to consider the following types of risk as key: technical, financial, environmental, social, political, commercial, reputational and organizational with the objective of assessing: The objectives of risk management in FM are to assess the:

- Risk of operational failure and the impact on mission critical activities of the City;
- Likelihood of incidents and failures in facility and workplace functioning, project delivery, service provision and workplace health and safety; and
- Impact of any of these aspects upon the City's programs, its reputation and its people.

Facility managers are expected to analyze the risks within their facilities and portfolio and to evaluate these risks regularly. Risk assessments should plan for the mitigation of the risks.

The audit found that a comprehensive and detailed assessment of FM risks does not occur. Facility risks for facilities managed by FOS are identified in RCFS at a

departmental level, but not in sufficient detail. OC Transpo and Water Services did not identify facility-related risks.

To fully understand risk in a facility, risk needs to be assessed top down from a portfolio level and bottom up from a facility and component level. A facility has many complexities such as the building envelope, HVAC, generators, plumbing, pumps, equipment etc. as a result, risk assessments must take into consideration risks at a component level in order to fully understand and quantify risk of the facility. Since building condition assessments have not been completed on all buildings and condition of building components have not been validated, the City does not fully know the condition of the components and facilities and therefore cannot fully understand and mitigate the risk.

AMB has recognized the shortcomings in risk assessment on assets (inclusive of facilities) and has started an initiative to develop a more robust asset risk management methodology inclusive of risk profile and ranking is currently being revised by Asset Management. The new methodology is exploring the application of consequence of failure and the likelihood of failure to all asset types including risk assessments at a component level, factoring in building criticality and component criticality.

The responsibility over the FM function being divided among a number of groups without an overall cohesive strategic FM focus results in an absence of a function-wide detailed risk assessment. The impacts of not conducting proper risk assessment are facility closures, health and safety issues, program interruptions caused by FM inability to mitigate risk.

Conclusion

Overall, FM risks are not identified, mitigated and monitored.

Recommendation

Recommendation 32 – Risk management

The City Manager implement a risk management framework that encompasses all aspects of the facilities management and takes a functional approach to risk management.

The audit expected to find performance information in place to permit management to exercise oversight and contribute effectively to FM decision making. This includes ensuring that:

- Key data elements to manage real property are identified;
- Key performance indicators and measures developed;
- Key performance indicators and measures tracked and monitored; and
- Systematic monitoring of performance linked to continual improvement.

A performance measurement framework enables the facility managers to exercise oversight to ensure facilities function as intended, delivery of effective workplaces and that FM is occurring efficiently. It identifies opportunities for improvement or corrective action. Facility managers need to create the means of assessing performance which are:

- Related to the strategic objectives;
- Practical regarding data gathering and comparison;
- Cost effective to measure;
- Meaningful for customers, stakeholders and/or technical specialists; and
- Usable for corrective action or to undertake improvement planning.

Typical indicators used by industry in FM include the following:

Table 9: Types of indicators used by industry in facility management

Financial indicators	**Physical indicators**	**Functional indicators**	**Utilization indicators**
Operating and maintenance cost by type	Facility condition index (FCI) analysis	Space utilization	Sqm/FTE
Cost per gross sqm.	Liability condition index (LCI) analysis	Occupancy turnover rate	Building capacity
Cost per building occupancy (FTE)	Indoor environmental quality	Adequacy of space	% of asset occupied by the City

Financial indicators	Physical indicators	Functional indicators	Utilization indicators
Lease cost per sqm	Resource consumption	Total energy use per m2	Occupancy cost per sqm
Investment per sqm	Own vs. leased gross sqm	Total energy use per user	
Total cost of ownership		CO2 emission per m2	
Total costs of ownership of each asset % of total costs		CO2 emission per user	
		Ratio usable SPS to usable non-SPS	
		Performance objectives attained.	
		Customer satisfaction	

The audit found that there is no formal performance management framework across the FM function that would permit management to properly exercise oversight over facilities and provide management with information required for decision-making and corrective action. Currently there is no department in the City that has information on how well all facilities owned by the City are maintained.

Performance information is not consistently requested or reviewed by management and reporting requirements have not been formally defined. Performance reporting is, for the most part, adhoc and reactive, without predefined targets and largely focused on budgets and FTE utilization and not also on operational and service delivery.

In FOS, formal reporting ceased after the 2016 reorganization. FOS managers, currently, are not reviewing a consistent set of reports and there has not been a process

to define the information and reporting requirements of facility managers at each level. Reporting is largely budget and HR focused with other reports adhoc in nature. The audit did observe that FOS has recently (in 2020) begun to resurrect certain reports such as the FOS Work Order Report.

Benchmarking in FM is another aspect of performance measurement that ceased in 2016 at the City. The municipality used to conduct benchmarking of its facilities but found that there was difficulty in ensuring consistent data was being compared. Research by the Building Owners Management Association indicates that possible savings from benchmarking can be up to 3% of facility operating costs. Available current benchmark networks include the Municipal Benchmarking Network Canada (MBN), which is a partnership between Canadian municipalities to identify and collect consistent and comparable data on their municipal service areas, report the findings annually and analyze those results. Currently, there are 16 Municipalities that have partnered with MBN. Last participation by Ottawa was in 2015.

The absence of a robust performance measurement framework is due to the lack of a need for accountability in facility performance. There is no organizational unit holding management accountable for the performance of FM. The City is, for the most part, not requesting facility managers to produce and manage by facility performance metrics and data. The impact is that the City is unable to exercise oversight, identify opportunities for increased cost-effectiveness and utilize performance information in decision making. The absence of performance information also impedes the ability to articulate FM issues and concerns for senior management and Council.

Conclusion

Overall, the audit did not find that performance information was in place for decision making and to enable management to exercise oversight over its facilities.

Recommendations

Recommendation 33 – Performance measurement

The City Manager implement a comprehensive performance measurement framework that encompasses all aspects of facilities management and is integrated with facility management decision-making.

Recommendation 34 – Benchmarking

The City Manager implement benchmarking internally and externally (for example, other municipalities, other public sector organizations, etc.) and implement opportunities for savings as identified through benchmarking.

Appendix 1 – List of acronyms, abbreviations and terms

The Audit of Facility Management refers to the following acronyms, abbreviations and terms.

AMB: Asset Management Branch

BCA: Building Condition Assessment

BEEM: Building Engineering and Energy Management Branch

CAM: Comprehensive Asset Management

CEMO: Corporate Energy Management Office

CREO: Corporate Real Estate Office

D&C: Design and Construction Branch

FCI: Facility Condition Index

FM: Facility Management

FOS: Facility Operations Services Branch

FTE: Full-time equivalent

IFMA: International Facility Management Association

ISD: Infrastructure Services Directorate

OBC: Ontario Building Code

O&M: Operations and Maintenance

OREG 588/17: Ontario Regulation 588/17

PIED: Planning, Infrastructure and Economic Development Department

PBG: Parks, Buildings and Grounds Branch

PM: Plant Maintenance

RCFS: Recreation, Cultural and Facility Services Department

REIO: Real Estate Internal Order

REPDO: Real Estate Partnerships and Development Office

ROPEC: Robert O. Pickard Environmental Centre

SAP: Integrated system used by the City of Ottawa as its financial system. It incorporates Finance, Supply, Human Resources, Project Management, Plant Maintenance, Maintenance Management and Real Estate Management information and functions

Vs.: Versus

Appendix 2 – Recommendations and management responses

Table 10: Recommendations, management responses and target dates

OAG recommendation	Management response	Target date
Recommendation 1 – Integrated FM function The City Manager should review the organizational and governance structure to ensure it supports an integrated City-wide facility management function.	Management agrees with this recommendation. A review of the organization and governance structure to better support an integrated City-wide facility management function will be completed by Q4 2021.	Q4 2021
Recommendation 2 – Policy and guidance The City Manager should establish a City-wide framework for the facility management function with guidance in the form of vision, mission statements, policies, standards and guidelines.	Management agrees with this recommendation. A framework for the facility management function already resides within CAM, specifically, within the Strategic Asset Management Plan (SAMP), which was received by Council in 2017. Future updates of the SAMP will provide further enhancements on applicable policies, standards and guidelines. The SAMP is expected to be updated by Q4 2022.	Q4 2022
Recommendation 3 – Compliance with the Ontario Building Code The City Manager should identify and implement necessary actions to regain compliance with the Ontario Building code as it relates to the identified 3 facilities.	Management agrees with this recommendation. RCFS is supporting PIED on the development of a strategy to manage building occupancy and address capacity issues within the administrative facilities. RCFS and PIED will continue to work collaboratively to implement necessary actions as they relate to employee	Q4 2021

OAG recommendation	Management response	Target date
	accommodations to regain compliance with the Ontario Building Code. The work from home directive in response to COVID-19 provides a unique opportunity to reassess the need for administrative office space, opportunities for a more formalized work from home program, and allocation of office space. The strategy is expected to be updated with improved occupancy levels by Q4 2021.	
Recommendation 4 – Roles and responsibilities The City Manager ensure clear definitions of roles and responsibilities as they pertain to all FM activities. Processes and procedures should be developed to support the roles of various stakeholders involved in FM, including clear criteria as to when Design and Construction should be involved in a project.	Management agrees with this recommendation. Clear definitions of roles, responsibilities and key processes as they pertain to facility management activities will be developed as part of CAM through the development of the service-based asset management plans. In accordance with Ontario Regulation 588/17 statutory requirements, these will be developed for facilities supporting road, water, wastewater and stormwater services by Q3 2021 and for all other facilities by Q3 2023.	Q3 2021 – service-based asset management plans for facilities supporting road, water, wastewater and stormwater services Q3 2023 – service-based asset management plans for all other facilities
Recommendation 5 – Quality management The City Manager should ensure the continued development of a City-wide quality management function for project work undertaken in facilities as soon as possible.	Management agrees with this recommendation. Management has already initiated the development of a city-wide quality management system (QMS) that builds on existing established practices. An enhanced, formalized QMS is expected to be completed by Q4 2024.	Q4 2024

OAG recommendation	Management response	Target date
Recommendation 6 – 3rd Party Agreements The City Manager should ensure the inclusion of key stakeholders (such as AMB and FOS) in the drafting and review of terms and conditions of 3rd party agreements and ensure that terms and conditions are clearly defined and communicated to all stakeholders.	Management agrees with this recommendation. While key stakeholders are informally engaged, current practices will be formalized and enhanced in documented procedures. This is expected to be completed by Q2 2021.	Q2 2021
Recommendation 7 – Service levels The City Manager should develop detailed levels of service expectations supported by service level agreements for the facility management function.	Management agrees with this recommendation. RCFS will revisit existing facility management shared service level agreements with clients and will refresh mutually agreed upon service levels as they pertain to Facility Operations Services. A renewed process and timelines for periodically updating the agreements will also be developed to reflect that fact that many service requirements do not change annually and, to strengthen the focus on priority issues that need attention. The framework for client consultations will be updated by Q3 2021. Additionally, detailed levels of service expectations will be developed as part of CAM through the development of the service-based asset management plans. In accordance with Ontario Regulation 588/17 statutory requirements, these will	Q3 2021 – framework for client consultations Q3 2021 – service-based asset management plans for facilities supporting road, water, wastewater and stormwater services Q3 2023 – service-based asset management plans for all other facilities

OAG recommendation	Management response	Target date
	be developed for facilities supporting road, water, wastewater and stormwater services by Q3 2021 and for all other facilities by Q3 2023.	
Recommendation 8 – Service delivery The City Manager should undertake a service delivery review of the facility management function to identify cost-effectiveness and identify the core competencies required to effectively deliver the facility management function. This review should also consider outsourcing aspects of the facility management function and identify potential for savings through outsourcing.	Management agrees with this recommendation. Periodic reviews of service delivery strategies will be undertaken to achieve the best combination of effectiveness, efficiency and savings. The facility management function as it exists in RCFS has established a flexible service delivery model that blends inhouse and external contracted services using the City's standing offer agreements. The use of contracted services may be deemed a preferred alternative in certain circumstances such as the requirement for specialized equipment and labour (licenses/legislation) that would be too costly for the City to maintain internally. The City's standing offer agreements ensure that the City receives competitive pricing when outsourcing is the preferred delivery option. Further, there are collective agreement provisions regarding contracting out, which the City is required to adhere to when considering outsourcing options. A review of the service delivery strategy will form part of the review being conducted in the response to Recommendation 1.	Q4 2021

OAG recommendation	Management response	Target date
Recommendation 9 – Succession plans The City Manager should develop and approve succession plans for key positions within the facilities management function. Succession plans should be linked to vision, objectives and goals and to analysis such as gap identification, resource utilization and sourcing strategies.	Management agrees with this recommendation. Extensive work has been and continues to be undertaken by management in the development of robust succession plans. Succession plans have been evolving and expanding to include more positions across the corporation, including key leadership and specialized positions. Significant work has gone into employee training and development, which are important contributors to strengthening the qualified candidate pool for succession management. RCFS has developed and implemented a comprehensive Facility Operations Services training program that is driven by position and is reviewed annually at each level of the operation. Training cycles and refreshers are tracked in SAP to ensure that priority training is completed. This includes the leadership, supervisory, human resources and financial process competency training that is needed at each progression. In addition, acting opportunities are tied to positions and are used as developmental opportunities to assist employees looking to advance or move laterally within the organization, in accordance with collective bargaining policies. Tools have been developed for succession planning for General Manager, Director and some key corporate positions.	Q1 2021 - framework Q2 2021 - tools and templates

OAG recommendation	Management response	Target date
	Human Resources will develop a framework for succession management for subsequent positions by the end of Q1 2021. This will include the development of tools and templates to be shared with departments in Q2 2021 as part of the Corporate Succession Management process. The approach includes: a) a review of the strategic business requirements with long-term talent trends; b) consideration of future skills and resources necessary to enable longer-term business plans; c) identification of critical positions and required competencies/skills (based on anticipated attrition, retirement, and available skill set); d) analysis of the Talent Scorecard including gap identification; and e) identification of developmental opportunities for potential successors along with external sourcing strategies as needed.	
Recommendation 10 – Integrated planning The City Manager should develop integrated management plans for the facility function. Both short-term and long-term asset management plans that outline their needs and priorities using facility management principles. Plans should be developed at all levels of facility management and	Management agrees with this recommendation. Integrated management plans, both short-term and long-term, are being developed for the facility function as part of CAM through the development of the service-based asset management plans. In accordance with Ontario Regulation 588/17 statutory requirements, these will be developed for facilities supporting roads, water, wastewater and stormwater	Q3 2021 – service-based asset management plans for facilities supporting road, water, wastewater and stormwater services Q3 2023 – service-based asset management

OAG recommendation	Management response	Target date
include strategic facility plans, and tactical plans.	services by Q3 2021 and subsequently for all other facilities by Q3 2023.	plans for all other facilities
Recommendation 11 – Priority linked to plan The City Manager should ensure that strategies are developed, and potential savings realized, for assets where deferred maintenance exceeds replacement costs and where assets are at the end of service life to ensure clear direction is provided on investment approach and priority.	Management agrees with this recommendation. Facility management strategies are being developed, to assist with identifying potential savings when deferred maintenance exceeds the replacement costs and where assets are at the end of service life, as part of CAM through the development of the service-based asset management plans. In accordance with Ontario Regulation 588/17, these will be developed for facilities supporting roads, water, wastewater and stormwater services by Q3 2021 and for all other facilities by Q3 2023.	Q3 2021 – service-based asset management plans for facilities supporting road, water, wastewater and stormwater services Q3 2023 – service-based asset management plans for all other facilities
Recommendation 12 – Priority ranking The City Manager should ensure that greater consistency and completeness in priority ranking of work orders is developed across the facility management function.	Management agrees with this recommendation. RCFS will ensure consistency and completeness in the priority ranking of FOS work orders, through the use of improved reporting tools, to be implemented by Q3 2021.	Q3 2021

OAG recommendation	Management response	Target date
Recommendation 13 – Priority ranking The City Manager should ensure that targets are established for the ratio of preventive vs. corrective maintenance and that strategies are implemented and monitored for achieving the targets. The targets should foster greater consistency in the ratio of preventive vs. corrective work orders.	Management agrees with this recommendation. RCFS has an existing monitoring and reporting framework of preventative versus corrective maintenance in Facility Operations Services. The service area has established 70:30 targets, consistent with and well within industry standards, for preventative versus corrective maintenance work orders. RCFS will continue to monitor and report on maintenance targets to ensure consistency and completion of facility related work orders. As part of the review being conducted in response to Recommendation 1, management will review the targets and strategies for FOS and other key corporate branches.	Q4 2021
Recommendation 14 – Priority ranking life-cycle The City Manager should ensure that project prioritization tools consider facility importance and criticality to the programs and services delivered by the City, replacement cost and life-cycle cost in the prioritization of projects.	Management agrees with this recommendation. Work is ongoing to enhance existing prioritization tools that consider a broader risk to service perspective. The risk framework and enhanced tools will feed into the service-based asset management plans that are being developed. In accordance with Ontario Regulation 588/17, the service-based asset management plans will be developed for facilities supporting roads, water, wastewater and stormwater services by Q3 2021 and for all other facilities by Q3 2023.	Q3 2021 – service-based asset management plans for facilities supporting road, water, wastewater and stormwater services Q3 2023 – service-based asset management plans for all other facilities

OAG recommendation	Management response	Target date
Recommendation 15 – Deferred maintenance The City Manager should ensure that there is a consistent formal definition of deferred maintenance.	Management agrees with this recommendation. Infrastructure Services, in consultation with Facility Management and other key corporate branches, will review the existing definition of deferred maintenance in the Infrastructure Services' Building and Park Assets Procedures Manual to ensure that it meets the intent of this recommendation, by Q2 2021. Any revisions to the definition will be communicated to applicable staff at that time.	Q2 2021
Recommendation 16 – Deferred maintenance The City Manager should ensure that a consistent approach and methodology is implemented for conducting building condition assessments.	Management agrees with this recommendation. Infrastructure Services will review the current approach and methodology for conducting building condition assessments listed in the Terms of Reference for Building Condition Audits (that are subject to periodic updating) to ensure that a consistent approach and methodology are clear, by Q2 2021.	Q2 2021
Recommendation 17 – Deferred maintenance The City Manager should ensure that building condition assessments are completed on a timely basis and that the backlog in completing building condition assessments are eliminated.	Management agrees with this recommendation. A risk management approach is being used in conducting building condition assessments for facilities over 5,000 square feet. The risk management approach to conducting building condition audits has now been expanded to facilities under 5,000 square feet as well.	Q3 2023

OAG recommendation	Management response	Target date
	A building condition audit for all occupiable buildings within a 10-year cycle is expected to be completed by Q3 2023, with the focus being on buildings under 5,000 square feet.	
Recommendation 18 – Building condition assessments The City Manager should ensure that an assessment of building condition is conducted on all assets in a consistent and timely manner.	Management agrees with this recommendation. A risk management approach is being used in conducting building condition assessments for facilities over 5,000 square feet. The risk management approach to conducting building condition audits has now been expanded to facilities under 5,000 square feet as well. A building condition audit for all occupiable buildings within a 10-year cycle is expected to be completed by Q3 2023, with the focus being on buildings under 5,000 square feet.	Q3 2023
Recommendation 19 – Unvalidated building condition The City Manager should ensure that the backlog of unvalidated building condition assessment events is eliminated and that unprioritized events are minimized, tracked and assessed for risk.	Management agrees with this recommendation. A risk management approach is being used in conducting building condition assessments for facilities over 5,000 square feet. The risk management approach to conducting building condition audits has now been expanded to facilities under 5,000 square feet as well. A building condition audit for all occupiable buildings within a 10-year cycle is expected to be completed by Q3	Q3 2023

OAG recommendation	Management response	Target date
	2023, with the focus being on buildings under 5,000 square feet.	
Recommendation 20 – Replacement cost The City Manager should ensure that the methodology for updating replacement cost be developed and that replacement cost values are maintained up-to-date.	Management agrees with this recommendation. The existing methodology to develop and update replacement cost values will be enhanced to ensure that these values are up-to-date and regular updates are maintained going forward. This work will be completed by Q4 2021.	Q4 2021
Recommendation 21 – Available funding The City Manager should develop strategies to manage the existing underfunding of assets, mitigate the impact of the existing underfunding, communicate facility underfunding to Council and ensure the funding of facilities at the appropriate level on a continued basis.	Management agrees with this recommendation. Strategies to manage and mitigate the underfunding of assets are outlined in the Strategic Asset Management Plan, Comprehensive Asset Management reports, Long Range Financial Plans and annual budget submissions to Council. Council has actively directed and adopted a plan to close the City's infrastructure gap. The existence of a gap in infrastructure funding is prevalent throughout Canada and much of North America. Strategies will be enhanced as part of CAM through the development of the service-based asset management plans. In accordance with Ontario Regulation 588/17, these will be developed for facilities supporting roads, water, wastewater and stormwater services by Q3 2021 and for all other facilities by Q3 2023.	Q3 2021 – service-based asset management plans for facilities supporting road, water, wastewater and stormwater services Q3 2023 – service-based asset management plans for all other facilities

OAG recommendation	Management response	Target date
Recommendation 22 – Integration of maintenance and capital requirements The City Manager should develop an approach to determine which groups will fund facility management activities that are based on criteria such as complexity, risk, criticality of the work required and opportunities for economies of scale.	Management agrees with this recommendation. As part of the review being conducted in response to Recommendation 1, management will review the current approach to determine which groups will fund facility management activities that are based on criteria such as complexity, risk, criticality of the work required and opportunities for economies of scale.	Q4 2021
Recommendation 23 – Systems The City Manager should develop integrated systems that directly link life cycle, and facilities management repairs and maintenance.	Management agrees with this recommendation. As information resides in different management systems (lifecycle information in RIVA and Maximo and financial information in SAP PS/PM), PIED and RCFS Facility Management will work with Information Technology Services to explore and identify viable opportunities to strengthen the integration of this information. This review will be completed by Q4 2021 and implementation or enhancements will be determined based on the findings of this review.	Q4 2021
Recommendation 24 – Systems The City Manager should ensure that building condition and project information entered in RIVA are complete and entered in a timely basis.	Management agrees with this recommendation. There are fifteen (15) outstanding building condition audits for facilities greater than 5,000 square feet that remain to be completed and entered in RIVA. This	Q1 2021

OAG recommendation	Management response	Target date
	work is expected to be completed by Q1 2021.	
Recommendation 25 – Funding linked to planning The City Manager should fully identify O&M and capital requirements required for facilities, align budgets to O&M and Capital Requirements and develop strategies to address the shortfall in funding for facilities and resulting deferred maintenance.	Management agrees with this recommendation. Strategies to manage operations and maintenance and capital requirements are outlined in the Strategic Asset Management Plan, Comprehensive Asset Management reports, Long Range Financial Plans and annual budget submissions to Council. RCFS will continue its annual facility-by-facility review of facility operating costs to adjust budget provisions based on the prior three (3) year actuals. Strategies to address the shortfall in funding for facilities and resulting deferred maintenance will be enhanced as part of CAM through the development of the service-based asset management plans. In accordance with Ontario Regulation 588/17 requirements, these will be developed for facilities supporting roads, water, wastewater and stormwater services by Q3 2021 and for all other facilities by Q3 2023.	Q3 2021 – service-based asset management plans for facilities supporting road, water, wastewater and stormwater services Q3 2023 – service-based asset management plans for all other facilities
Recommendation 26 – Variance analysis	Management agrees with this recommendation.	Q2 2021 – assessment / plan

OAG recommendation	Management response	Target date
The City Manager should implement a formalized framework and approach for a full and consistent review of variance analysis and coding accuracy of FM expenditures.	Procedures will be developed for the reconciliation, distribution and review of variance reports to a level of detail that is sufficient to provide managers with the information they need to identify key root causes of variance. Additional analytical resources, system enhancements and reporting capability may be required to support these changes. An assessment of these requirements and a related implementation plan will be completed by Q2 2021. Implementation of these changes is expected by Q4 2021.	Q4 2021 – implementation
Recommendation 27 – Deferred maintenance The City Manager should implement practices to quantify, monitor deferred maintenance and funding pressures and assess their impact. Facility Management strategies should be implemented to address deferred maintenance.	Management agrees with this recommendation. Strategies to manage deferred maintenance are outlined in the Strategic Asset Management Plan, Comprehensive Asset Management reports, Long Range Financial Plans and annual budget submissions to Council. Additionally, RCFS has introduced, in its annual capital budget, an Infrastructure Upgrades capital account to address priority issues resulting from deferrals that impact frontline services or emerging needs. Strategies to address the shortfall in funding for facilities and resulting deferred maintenance will be enhanced as part of CAM through the development of the service-based asset management plans. In accordance with Ontario Regulation 588/17 requirements, these will be	Q3 2021 – service-based asset management plans for facilities supporting road, water, wastewater and stormwater services Q3 2023 – service-based asset management plans for all other facilities

OAG recommendation	Management response	Target date
	developed for facilities supporting roads, water, wastewater and stormwater services by Q3 2021 and for all other facilities by Q3 2023.	
Recommendation 28 – Compliance with coding The City Manager should ensure full compliance and consistency with the coding required by the SAP integrated model such that full cost of ownership of facilities can be obtained and used as input into managing the performance of specific facilities and the function, overall.	Management agrees with this recommendation. Management will conduct a review to explore the feasibility, associated costs and timing to align the coding required by the SAP integrated model such that full cost of ownership of facilities can be obtained and used as input into managing the performance of specific facilities. This review will be completed by Q4 2021 and is subject to future budget considerations, if required.	Q4 2021
Recommendation 29 – Work Orders detail The City Manager should ensure that work orders, that are repair and maintenance related, are not charged to standing orders but are tracked as separate work orders.	Management agrees with this recommendation and this is the current practice. Currently, RCFS routinely reviews the creation of work orders at the facility level through the Facility Operations Maintenance Planning unit, with a focus on effective financial tracking and reporting. Facility Operations will undertake a comprehensive review of the work order structure by Q4 2021.	Q4 2021

OAG recommendation	Management response	Target date
Recommendation 30 – Budget framework The City Manager should undertake a formal review of the optimal framework for ensuring the accountability in the use of facilities and office space. This should include consideration given to City-wide policy on chargebacks of FM services and aligning budget accountability to departmental units that have control over the costs.	Management agrees with this recommendation. Currently, there is a policy in place for episodic changes like adding hours for one-time events, costs for Facility Operations services are built into the annual budget and costs for project specific activity is recovered through chargebacks. A review will be conducted of the chargeback practices to expand the policy to include the impacts of long-term or permanent changes to services and associated costs on a City-wide basis. A review and update of the current chargeback policy will also be conducted to better align budget accountability to departmental units that have control over their costs. These policy changes will be implemented by Q3 2021.	Q3 2021
Recommendation 31 – Information Systems The City Manager develop and implement a strategy for the integration of facility management related systems.	Management agrees with this recommendation. As information resides in different management systems (lifecycle information in RIVA and Maximo and financial information in SAP PS/PM), PIED and RCFS Facility Management will work with Information Technology Services to explore and identify viable opportunities to strengthen the integration of this information. This review will be completed by Q4 2021 and implementation or enhancements will	Q4 2021

OAG recommendation	Management response	Target date
	be determined based on the findings of this review.	
Recommendation 32 – Risk management The City Manager implement a risk management framework that encompasses all aspects of the facilities management and takes a functional approach to risk management.	Management agrees with this recommendation. The City has an Enterprise Risk Management Framework and Policy, which were designed to create a risk-aware corporate culture where the management of risks is integrated into the operations and administration of the City. This Policy applies to all work at strategic, corporate and operational levels including projects and work activities where risk is inherent. A review of the existing identified risk and associated management/mitigation measures related to facility management will be completed by Q3 2021.	Q3 2021
Recommendation 33 – Performance measurement The City Manager implement a comprehensive performance measurement framework that encompasses all aspects of facilities management and is integrated with facility management decision-making.	Management agrees with this recommendation. The performance measurement framework will be enhanced in the next iteration of the Strategic Asset Management Plan (SAMP) in 2022 and will then be incorporated into the Service-Based Asset Management Plans. These will be developed in consultation with Facility Management and other key corporate stakeholders. As part of Comprehensive Asset Management, the Service-Based Asset	Q4 2022 – SAMP update Q3 2021 – service-based asset management plans for facilities supporting road, water, wastewater and stormwater services Q3 2023 – service-based asset management

OAG recommendation	Management response	Target date
	Management Plans are being developed in accordance with Ontario Regulation 588/17 requirements and these will be developed for facilities supporting roads, water, wastewater and stormwater services by Q3 2021 and for all other facilities by Q3 2023.	plans for all other facilities
Recommendation 34 – Benchmarking The City Manager implement benchmarking internally and externally (for example, other municipalities, other public sector organizations, etc.) and implement opportunities for savings as identified through benchmarking.	Management agrees with this recommendation. Management will investigate opportunities to expand and formalize benchmarking practices specific to the operations and maintenance function of Facility Management by Q3 2021.	Q3 2021

Appendix 3 – About the audit

Audit objectives and criteria

The overall objective of this audit was to assess the City's management practices relating to FM. This overall objective was comprised of the following 5 audit objectives.

Audit objective 1: Assess the effectiveness of the coordination and resourcing of the FM function

Criteria:

- FM is coordinated across all stages of City-wide facility life-cycle management
- Roles and responsibilities relating to FM are clearly defined, communicated and understood
- There is an appropriate allocation of inhouse and contracted resources

Audit objective 2: Assess the adequacy of the FM planning framework

Criteria:

- There is an integrated planning framework that addresses FM issues, set initiatives and targets, including facilities strategies plans, asset and capital plans, program plans

Audit objective 3: Assess the controls that ensure operations and maintenance activities are prioritized and integrated with capital requirements

Criteria:

- Program of work is adequately prioritized
- Facilities capital activities are fully integrated with repairs and maintenance

Audit objective 4: Assess the controls over FM funding and budget management

Criteria:

- Sufficient funding exists to properly maintain facilities and deliver required level of service
- Controls over the management of facility budgets are adequate

Audit objective 5: Assess the controls that ensure the FM function is adequately supported by information, risk and performance management

Criteria:

- 5.1 Information systems allow for the necessary analysis required to support the size and complexity of facilities and their operations
- 5.2 FM risks are identified, mitigated and monitored
- 5.3 Performance information permits management to exercise oversight and contribute effectively to decision making

Scope

The scope of the audit includes the facility management function City-wide. The audit focused primarily on facility management provided by FOS, OC Transpo, Water Services and Asset Management. The FM function includes:

- Facility planning;
- Engineering and construction interface;
- Corporate Real Estate Interface;
- Procurement and contracts;
- Facility maintenance and repairs;
- Providing custodial services;
- Coordinating moves;
- Maintaining and upgrading building systems;
- Maintaining external grounds; and
- Providing clients support.

Excluded from the scope of the audit is:

- The Building Engineering and Energy Management Branch (BEEM) which was recently audited
- Infrastructure assets i.e. City systems and services, such as transport and power supplies, water and sewer

Audit approach and methodology

The Office of the Auditor General follows a modified version of the International Standards for the Professional Practice of Internal Auditing. The Standards require that sufficient and appropriate audit procedures be conducted and that evidence be gathered to provide reasonable assurance of the accuracy of audit findings and conclusions, as they existed at the time of the audit.

The audit methodology included the following activities:

- Interviews and process walkthroughs with City staff involved in the FM function;
- Review and assessment of FM documentation such as FM plans and reports; and
- Audit and testing of relevant documentation and transactions, e.g. testing linkages among facilities plans and repairs, maintenance and capital expenditures.

The audit coverage included 59 interviews conducted with 43 individuals participating in FM activities, across 16 departmental units. The audit also interviewed 6 clients (or users of facilities). In addition to interviews with internal municipal staff, the audit also reached out to other municipalities and conducted interviews with FM mangers at the City of Toronto, City of Winnipeg and the City of Mississauga. The audit also reviewed documentation publicly available on the subject of FM including those provided by other Canadian municipalities

The audit fieldwork was substantially completed in July 2020.

Appendix 4 – Facility Management at the City

The following diagram provides an overall depiction of the FM function at the City.

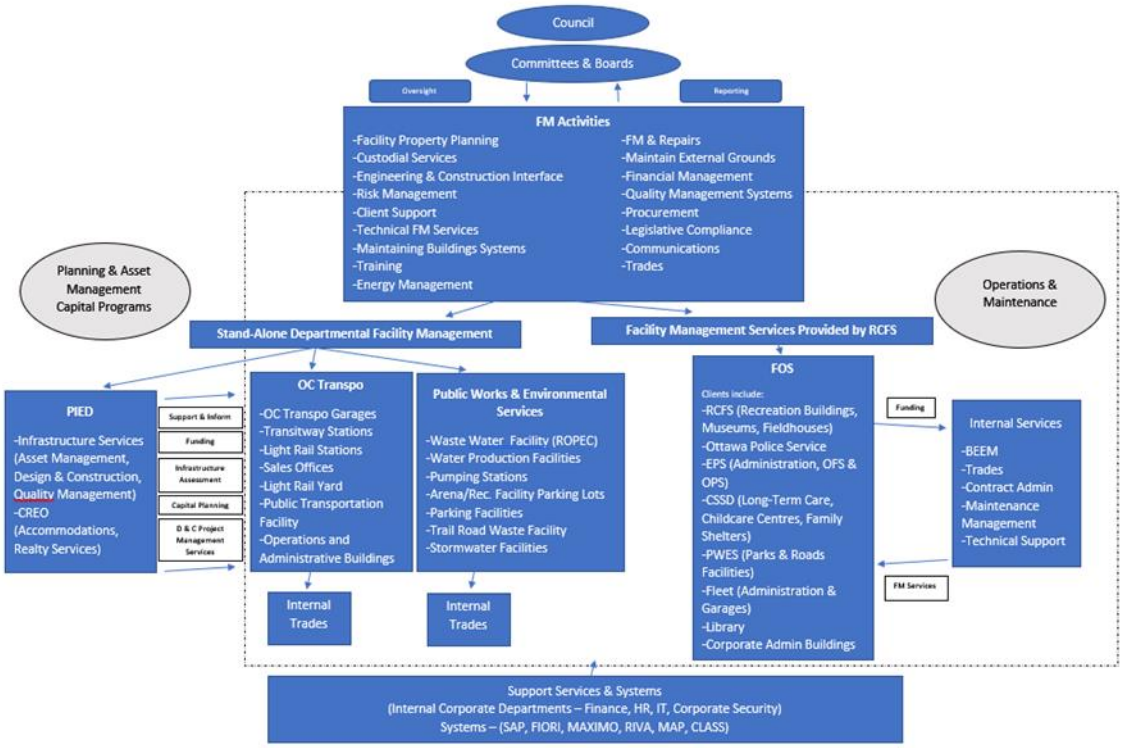

Figure 5: Overall depiction of the FM function at the City

Appendix 5 – Status of completion of Building Condition Assessments (BCA) basis

138 BCAs have been identified as being past due or not previously completed, as detailed below:

Table 11: Status of completion of Building Condition Assessments

Years Past Due	Number of BCAs
1	8
2	17
3	16
4	2
5	5
6	15
7	10
8	1
9	4
10	2
None previously completed	58
Total	138

Acknowledgement

The team responsible for this audit, comprised of staff from Virtus Consulting Inc., under the supervision of Sonia Brennan, Deputy Auditor General and the direction of Ken Hughes, Auditor General, would like to thank those individuals who contributed to this project, and particularly, those who provided insights and comments as part of this audit.

Original signed by:

Auditor General