



City of Markham

Asset Management Audit

October 7, 2019

PREPARED BY: MNP LLP

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October 7, 2019

Mayor and Members of Council,

Pursuant to MNP LLP's appointment to provide Auditor General Services, I am pleased to present the Asset Management audit report ("report") of the Auditor General for the City of Markham ("the City"). To ensure the results of our audit are balanced, we have provided in this report a summary of identified strengths as well as observations and recommendations for improvement.

The audit work was substantially completed on June 7, 2019. The report was discussed with the City's management, who have reviewed the report and provided their responses within. This report is provided to you for information and approval of the City's proposed action plans.

Based on the results of our audit, the City has sufficient processes and controls in place over Asset Management activities. Noted areas of strength include having a standardized Asset Management Plan, and continuous tracking of Asset Management funding requirements.

Opportunities for improvement were also identified with respect to the City's Asset Management practices reassessment and completion of the Asset Management Strategy, development of a formal Asset Management manual, and monitoring and reporting at an enterprise level for Asset Management activities.

The report will be posted on the City's website and made available to the public after tabling to Council.

Sincerely,

Geoff Rodrigues, CPA, CA, CIA, CRMA, ORMP

Auditor General, City of Markham

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EXECUTIVE SUMMARY

The City takes a decentralized approach to Asset Management. The Sustainability & Asset Management Department sets the policy direction for Asset Management and City Departments are responsible for maintaining and monitoring assets under their custody. The City uses a 25-year Life Cycle Replacement and Capital Reserve Study, that is updated annually, to determine cash-flow requirements for rehabilitation maintenance of its assets.

The City's Asset Management Plan was most recently developed in 2016 to participate in the Municipal Funding Agreement renewal for Federal Gas Tax Funds. It includes the following elements:

- State of infrastructure;
- Level of service;
- Asset Management strategy; and,
- Financing strategy.

Going forward, the City must ensure that its Asset Management process adheres to the requirements of Ontario Regulation 588/17: Asset Management Planning for Municipal Infrastructure, which was created in 2018 to better reflect today's environment and variables (i.e. changes in population and economic growth and vulnerabilities caused by climate change).

As Auditor General for the City, MNP LLP ("MNP") conducted an audit to evaluate the processes and controls in place relating to Asset Management, focusing on the following:

- Policies, procedures, processes and controls;
- Asset Management Plan and departmental Asset Management practices;
- Asset Management Framework and Strategy; and,
- Performance measures and metrics.

Based on the audit, the City has sufficient processes and controls in place over Asset Management activities. Many of the key controls assessed have evidence to demonstrate operating effectiveness. Noted areas of strength include:

- The City's Asset Management Plan details a framework and strategy to ensure alignment between corporate
 goals and how assets are managed is standardized and modeled after provincial standards. As well, the City
 has an Asset Management Policy and governance structure in place to provide City staff with Asset
 Management principles, lines of authority, and their role within the enterprise Asset Management system.
- Throughout the fiscal year, City Departments complete a standardized tracking sheet with the cash-flow
 requirements for rehabilitation and maintenance activities of their assets for a rolling 25-year period (Life Cycle
 Replacement and Capital Reserve Study). The results of the study are a requirement for obtaining annual
 capital budget approval from the Finance Department and City Council.

The audit also identified opportunities to strengthen internal controls in the following areas:

- Reassessment and completion of aspects of Phase II of the Asset Management Strategy, including development of a performance management framework, risk framework and outcomes-based levels of service;
- Formal Asset Management manual that outlines specific asset management processes, procedures and requirements for all Departments; and,
- Monitoring and reporting at an enterprise level for Asset Management activities.

BACKGROUND

The City owns a total of approximately \$7.9B in infrastructure assets, including right of way infrastructure (roads, stormwater infrastructure, bridges, streetlights, water, wastewater), parks, facilities, information technology ("IT") infrastructure, and fleet.

In 2012, the Ontario Ministry of Infrastructure ("MOI") declared that any municipal requests for infrastructure funding must be supported by an Asset Management Plan. The Plan is required to include the following elements:

- State of infrastructure;
- Level of service;
- · Asset Management strategy; and,
- Financing strategy.

Further, in April 2014, as part of the Municipal Funding Agreement renewal for Federal Gas Tax Funds, it was required that municipalities develop an Asset Management Plan by December 31, 2016 in accordance with the guidelines set out by the MOI, in order to be eligible for federal Gas Tax Funds.

The development of the City's Asset Management Plan was led by the Asset Management Department, with key staff from the Sustainability, Finance, IT, Operations, and Environmental Services Departments (as they were structured at that time). The City's Asset Management Plan aims to ensure that the City's investments are strategic and timely, in an effort to minimize future repair and rehabilitation costs to support core services. The Asset Management Plan is intended to promote the continual Asset Management practices within the City, reflecting Asset Management maturity within the City over time, and will be updated every four years (the next update being completed by 2021). In addition, to inform the Plan, the City updates a 25-year Life Cycle Reserve Study, used for long-term budget and forecasting requirements, on an annual basis.

There are a number of City Departments which have assets under their custody, including:

- Environmental Services;
- Operations;
- Sustainability & Asset Management;
- Information Technology Services;
- · Engineering;
- Library;
- Recreation;
- Urban Design; and,
- Fire.

As mentioned above, assets range from right of way infrastructure (roads, stormwater infrastructure, bridges, streetlights, water, wastewater), parks, facilities, information technology ("IT") infrastructure, and fleet. After its formation in 2017, the Sustainability & Asset Management Department was tasked with setting the policy direction for Asset Management, with City Departments responsible for maintaining and monitoring assets under their custody.

Since the development of the Asset Management Plan in 2016, the Asset Management landscape has changed with the introduction of Ontario Regulation 588/17: Asset Management Planning for Municipal Infrastructure in 2018. The City has closely reviewed the Regulation and is actively working towards meeting its requirements. This includes having an Asset Management Policy, which was approved by Council in May 2019.

In addition, the City has recently selected a vendor to provide an Enterprise Asset Management ("EAM") solution. The objective of the EAM solution is to eliminate asset and work order management related manual processes in

participating departments, and improve, standardize and streamline existing processes. Full implementation of the solution is anticipated to be completed by 2021.

OBJECTIVE

The objective of the audit was to evaluate the processes and controls in place relating to Asset Management, to identify strengths and/or weaknesses, and to provide recommendations for improvement to leading practices.

SCOPE

The scope of the audit concentrated on Asset Management activities, covering the period from January 1, 2017 to May 31, 2019. Specifically, the scope of the audit focused on the following:

- Obtaining and understanding applicable by-laws, policies, procedures, processes and existing controls through interview of key personnel in Sustainability & Asset Management, Environmental Services, Operations, and Finance Departments;
- Reviewing documentation related to the City's Asset Management Plan and related activities, including:
 - Departmental Asset Management practices (such as Environmental Services, Operations, Sustainability & Asset Management);
 - Asset Management Framework; and,
 - Performance measures and metrics used for Asset Management planning and monitoring levels of service.
- Assessing the current state and progress of the City's Asset Management Strategy; and,
- Assessing the City's Asset Management activities and practices against leading practices.

The following areas were not within the scope of this audit:

- Assessment of the results of the Life Cycle Reserve Studies;
- Adequacy of capital reserves needed to fund the Asset Management Plan recommendations;
- Implementation of the Enterprise Wide Asset Management System; and,
- Information technology general controls ("ITGCs") within capital databases.

RISKS

The following inherent risks were considered during the audit, which given the scope of the audit are typical risks to be considered:

- The AMP and related policies are outdated and do not clearly satisfy the relevant provincial and municipal requirements and guidelines.
- Roles and responsibilities relating to Asset Management activities are not clearly defined, documented and understood.
- Employees are not provided with the necessary training and information to carry out their Asset Management responsibilities.
- Monitoring practices and controls are not in place to ensure compliance with Asset Management policies and procedures.
- Complete, accurate and timely information necessary to manage capital asset throughout their lifecycle is not captured or not available.
- Performance indicators or metrics for monitoring the effectiveness and efficiency of the Asset Management processes have not been developed or are not reported to executive management and Council.

APPROACH

Based on MNP methodology, the high-level work plan for the audit included the following:

1. Project Planning

- •Define objectives and scope.
- •Confirm project duration and schedule.
- Assign team members and develop team structure.
- •Describe deliverables.
- •Create Audit Planning Memo and distribute to stakeholders.



2. Project Execution

- Obtain existing policies, process descriptions and relevant documentation.
- Conduct interviews / discussions.
- •Understand current state.
- Evaluate current state.



3. Project Reporting

- •Identify improvement opportunities.
- Prepare draft report with observations and recommendations.
- Validate and present recommendations.
- •Issue final report.

AUDIT TEAM

The audit was carried out by the following MNP team:

Geoff Rodrigues, Audit Lead Partner	Provided expertise in audit methodology, directed the MNP team in all stages of the audit, and ensured that firm and professional quality assurance standards are maintained.
Veronica Bila, Audit Delivery Partner	Managed all aspects of the engagement and reviewed audit results.
Jason Ducharme, Quality Assurance Partner	Ensured that firm and professional quality assurance standards are maintained.
Tim Commisso, Subject Matter Expert	Provided expert knowledge on Asset Management leading practices during the audit.
Chris Wu, Senior Auditor	Planned and carried out the audit procedures, involving the above resources as needed.

STRENGTHS

In conducting the audit, MNP noted the following strengths with respect to the City's processes and controls in place over Asset Management activities:

Asset Management System

The City has all four foundational elements of an Asset Management System, which include:

- 1. Policy which defines the underlying principles that the City intends to follow when using Asset Management practices to meet the requirements of the City's strategic plans;
- 2. Framework which defines the key practices, processes, tools and documents that make up the Asset Management system and the functional relationships between those elements;
- 3. Strategy which defines how the municipality's context and strategic objectives translate to Asset Management objectives; and,
- 4. Governance Structure which formalizes the linkages between various functions within the City and assigns accountabilities and responsibilities related to Asset Management.

These four foundational elements place the City in a strong position to effectively carry out its Asset Management activities.

Capital Budgeting Process

Throughout the fiscal year, City Departments complete a standardized tracking sheet with the cash-flow requirements for rehabilitation and maintenance activities of their assets for a rolling 25-year period (Life Cycle Replacement and Capital Reserve Study). There are annual Budget Committee meetings to review life cycle reserve funding, forecast updates and investment amounts. The results of the study are a requirement for obtaining annual capital budget approval from the Finance Department and Council.

SUMMARY OF OBSERVATIONS

To enable the City to set priorities in their action plans, we have reported our observations in one of three categories, "Low", "Medium" or "High" based on our assessment of the priority (i.e. significance, complexity, and resources required) of each observation.

Rating	Rating Description
L = Low	The observation is not critical but should be addressed in the longer term to improve internal controls or process efficiency (i.e. 6 to 12 months).
M = Medium	The observation should be addressed in the short to intermediate term to improve internal controls or process efficiency (i.e. 3 to 6 months).
H = High	The observation should be given immediate attention due to the existence of a potentially significant internal control weakness or operational improvement opportunity (i.e. 0 to 3 months).

The table below provides a summary of our observations and recommendations, based on the rating scale outlined above. Detailed observations and recommendations can be found in **Appendix A**.

REF.	SUMMARY OF OBSERVATIONS AND RECOMMENDATIONS	RATING		
KEF.	SUMMART OF OBSERVATIONS AND RECOMMENDATIONS	L	M	Н
1	Asset Management Strategy			
	During the audit scope period, several components of Phase II of the Asset Management Strategy have not been completed in accordance with timelines set out in the Asset Management Plan. Without timely completion of the Asset Management components, the City may not have the tools, datasets and knowledge to be able to make informed decisions over its assets. This may result in the delivery of services becoming less effective and efficient.			
	The outstanding components of the Asset Management Strategy should be reassessed and compared against the requirements set out in in Ontario Regulation 588/17. A formal annual review process should be established to discuss and document the progress of the strategy. The results of this exercise should be reported to the Corporate Asset Management Steering Committee and to Council.			
2	Documentation of Asset Management Business Process Activities Although business process documentation and standard operating procedures are available for some City Departments, there are no formal process documents outlining the specific process steps, procedures and requirements. Without such documentation of complex programs, there is a risk that in the case of staff turnover, knowledge transfer will become difficult and institutional knowledge will be lost. An Asset Management process manual encompassing all Departmental processes and procedures should be developed. The manual should be regularly reviewed and updated as needed, and training provided to staff.			

REF.	SUMMARY OF OBSERVATIONS AND RECOMMENDATIONS	RATING		
KEF.	SUMMARY OF OBSERVATIONS AND RECOMMENDATIONS	L	M	Н
3	Performance Monitoring and Reporting			
	The City conducts monitoring and reporting at a Department level, but not on an enterprise-wide level for Asset Management activities outlined in the Asset Management Plan. Without such enterprise-wide level monitoring and reporting in place, the City may be challenged to determine how well the Asset Management Plan and Strategy are performing and progressing against its goals. Reporting metrics for key Asset Management activities and deliverables should be			
	reported to the Corporate Asset Steering Committee and to Council at an enterprise-wide level. As well, the roles and responsibilities for reporting and monitoring on Asset Management should be clearly documented within the Asset Management Policy. Once the EAM solution has been implemented, opportunities should be explored to leverage its enhanced data management capabilities.			
	An Asset Management process manual encompassing all Departmental processes and procedures should be developed. The manual should be regularly reviewed and updated as needed, and training provided to staff.			

RECOMMENDATIONS

The Auditor General recommends that:

- 1. The Asset Management Audit Report be received; and,
- 2. City staff be authorized and directed to do all things necessary to give effect to the recommendations.

ACKNOWLEDGMENTS

We would like to express our appreciation for the cooperation and efforts made by City staff whose contributions assisted in ensuring a successful engagement. City staff provided the Auditor General with unrestricted access to all activities, records, systems, and staff necessary to conduct this audit freely and objectively.

APPENDIX A: DETAILED OBSERVATIONS AND RECOMMENDATIONS

#	Observation	Rating	Recommendation	Management Response
# 1	Asset Management Strategy As part of the 2016 Asset Management Plan, the Asset Management Strategy consists of two phases: • Phase I: Preparation of an Asset Management Plan, which includes documenting the City's existing Asset Management practices in accordance provincial guidelines and identifying challenges of current and future infrastructure needs. • Phase II: Further refinement of the City's Asset Management Strategy to ensure consistent Asset Management practices in data collection, decision making, and risk assessment. As part of Phase II, the City has selected a vendor to provide customized software for both enterprise Asset Management and Asset Management planning. In addition, the Finance Department has worked	Rating Medium	Recommendation The following items not completed as planned within the 2016 Asset Management Plan should be reassessed: Outcome-based levels of service; Performance management framework; and, Risk management framework. Completion timelines should be established and compared against the requirements and deadlines set out in in Ontario Regulation 588/17 to ensure the City's regulatory obligations are met in a timely manner. As dictated by Ontario Regulation 588/17, the Corporate Asset Management Steering Committee should develop a formal annual review process to discuss and document the progress of the Asset Management Plan and Strategy. The results of the annual review should be reported to the Corporate Asset Management Steering Committee and to Council.	Management supports the Auditor General's recommendation. Asset Management Plan Update The City is currently in compliance with Ontario Regulation 588/17. The new regulation came into effect after Council's approval of the City's 2016 Asset Management Plan and included new timelines for completion of Phase II tasks (Development of the Asset Management Strategy). Accordingly, the 2016 Asset Management Plan will be updated by the Asset Management Steering Committee (AMSC, as per Council approved Asset Management Policy dated May 14, 2019) to align with the O. Reg. 588/17 requirements and timelines (July 1, 2021 for core assets and July 1, 2023 for all assets). A staff position request for a Manager, Corporate Asset Management has been included as part of the 2020 Budget. This position will lead the work resulting from the audit, ensure 588/17 compliance, and coordinate with the Enterprise Asset
	collaboratively with City Departments to			coordinate with the Enterprise Asset Management system implementation.
	continuously examine and improve its Life Cycle Reserve planning/forecasting process.			If the request is not approved, some existing staff working to maintain current assets will need to be reallocated to address legislative requirements and the implementation of the

# Observation	Rating	Recommendation	Management Response
However, at the time of the audit, several components of Phase II have not been completed in accordance with timelines set out in the Asset Management Plan, which were planned to be completed during the years 2017 and 2018. These include the completion and development of: • Outcome-based levels of service (LOS)¹; • Performance management framework, and, • Risk management framework. It should be recognized that the realization of any corporate strategy could take years and that Ontario Regulation 588/17 altered the trajectory of the City's Asset Management focus. However, without timely completion of the Asset Management components mentioned above, the City may not have the tools, datasets and knowledge to be able to make informed decisions over its assets (i.e. operation, maintenance, renewal, maintenance, replacement, and decommissioning).			audit recommendations. This could present a risk to ensuring all assets continue to be maintained in a good state of repair. Timeline for Completion: Work will begin by Q1 2020 and will be completed and approved by Council to meet the regulated timelines: • Q2: 2021 - Core Assets (water, wastewater, storm water management, bridges and culverts and roads). • Q2: 2023 – All Assets (the above, plus facilities and parks). Formal Annual Review Council approved the Asset Management Policy dated May 14, 2019 and established the Asset Management Steering Committee (AMSC), which will ensure organization-wide accountability for achieving and reviewing corporate asset management goals and objectives, including annual reporting to Council. The AMSC will provide a formal annual progress report to Council on the Asset Management Plan, Strategy and O.Reg. 588/17 compliance. Timeline for Completion: Annually in Q2, beginning in 2020.

¹ Outcome-based levels of service: The use of actual performance data in developing levels of service that improve operation efficiency and result in the desired business outcomes of the City (i.e. customer satisfaction, operational excellence, staff engagement, and financial performance).

#	Observation	Rating	Recommendation	Management Response
2	Documentation of Asset Management Business Process Activities In order for an Asset Management system to function optimally, there must be clear linkage between its key components that support the system, including the plan, policy, processes and procedures. During the audit, we observed that although business process documentation and standard operating procedures are available for some City Departments, the linkage back to the specific activities, as outlined in the Asset Management Plan, is unclear. There are also no formal process documents outlining the specific process steps, procedures and requirements that must be followed for maintenance, rehabilitation, replacement, and conditional assessments. Without such documentation of complex processes, there is a risk that in the case of staff turnover, knowledge transfer will become difficult and institutional knowledge will be lost.	Medium	An Asset Management process manual encompassing all Departmental processes and procedures should be developed. The manual should encompass all Asset Management activities including maintenance, rehabilitation, replacement, conditional assessments/audits and service levels. Within the manual, for each asset category, the following components should exist: Custodian for each asset type; Procedures on how to perform associated Asset Management activities; Applicable tools and templates; Appropriate referencing to other City policies and standard operating procedures, as applicable; and, Direct linkage of Asset Management activities outlined in the Asset Management Plan. The manual should be regularly reviewed and updated as needed, and training provided to staff. Once the EAM solution has been implemented, the manual should be aligned with any new EAM solution workflow/business processes.	Management supports the Auditor General's recommendation. Asset Management business process activities are carried out by Staff across the organization on a daily, monthly and annual basis. These activities meet legislated requirements and are aligned to industry standards and guidelines. Documentation describing this work exists but are not standardized enterprise wide. Currently, pre-work/internal consultation on the Enterprise Asset Management (EAM) project is ongoing and data/process mapping/opportunities are being identified. EAM scope of work includes the following tasks related to an Asset Management Process Manual: • Documentation of current business processes; • Current and recommended data governance protocol by asset type; and, • Recommended future business processes. The software will create a standard data collection framework that will consolidate the asset management work of all departments into one document with reporting and analytical functions that create a corporate wide view. The manual will also include training materials for each asset type.

#	Observation	Rating	Recommendation	Management Response
3	Performance Monitoring and Reporting One of the four major elements of the City's Asset Management Framework is to ensure regular monitoring and reporting of Asset Management activities are taking place. During our audit, we observed that there are strong monitoring and reporting mechanisms for the financial aspects of Asset Management. For example, there are annual Budget Committee meetings to review life cycle reserve funding, forecast updates and investment amounts. The City also monitors the following Asset Management activities outlined in the Asset Management Plan:	Low	Reporting metrics for key Asset Management activities and deliverables should be reported to the Corporate Asset Steering Committee and to Council at an enterprise-wide level. As well, the roles and responsibilities for reporting and monitoring on Asset Management should be clearly documented within the Asset Management Policy. In addition, once the EAM solution has been implemented, opportunities should be explored to leverage its enhanced data management capabilities through creation of performance dashboards and other analytical tools.	Timeline for Completion: The Asset Management Manual will be updated within six months of the last phase of EAM implementation by all departments. Management supports the Auditor General's recommendation. Currently, Asset Management performance monitoring and reporting is taking place at departmental level and corporate data is reported to Council annually as part of Life Cycle updates and Capital Budget process. The Asset Management Steering Committee (AMSC) is responsible for enterprise level performance monitoring and reporting as per section 7.C.g of the Asset Management Policy (dated May 14, 2019). Timeline for Completion: City's first enterprise level Asset Management
	 Actual results versus targets; Results based benchmarking²; Gap assessments; Performance against business drivers (i.e. regulatory requirements, customer requirements/expectations, corporate goals and strategies); and, 		·	Performance Monitoring and Reporting to Council will be completed by Q2 2021 (after completion of Asset Management Plan (AMP) updates). The 2021 AMP update will include the performance reporting matrix.

² Results based benchmarking: A comparison between the City's actual service performance results against those of other local governments to identify opportunities to increase efficiency and effectiveness of services.

#	Observation	Rating	Recommendation	Management Response
	Levels of service. While the City conducts performance monitoring and reporting at the Department level, the City does not track and report on the above at an enterprise-wide level. Without enterprise-wide level monitoring and reporting in place, the City may be challenged to determine how well the Asset Management Plan and Asset Management Strategy are performing and progressing against its goals. As a result, improvement opportunities to the Asset Management process and practices may not be identified in a timely manner.			Departmental and enterprise level performance dashboards will be developed following EAM implementation.



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