

# *The Corporation of the City of Windsor*

## *Life Cycle Costing & Asset Planning Methodology*

*Final Internal  
Audit Report*

*August 7, 2019*

### **Distribution list**

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### **Limitations & responsibilities**

This Report was developed in accordance with our engagement letter dated June 2016 and is subject to the terms and conditions included therein. Our work was limited to the specific procedures and analysis described herein and was based only on the information made available at the time we prepared the report. Accordingly, changes in circumstances after the date of this Report could affect the findings outlined herein. We are providing no opinion, attestation or other form of assurance with respect to our work and we did not verify or audit any information provided to us. This information has been prepared solely for the use and benefit of and pursuant to a client relationship exclusively with the Corporation of the City of Windsor. PwC disclaims any responsibility to others based on its use and accordingly this information may not be relied upon by anyone other than the Corporation of the City of Windsor.



# *Table of contents*

<b>Internal audit context</b>	<b>2</b>
Background information	2
Scope & objectives	3
Scope exclusions	4
<b>Summary of Internal Audit results</b>	<b>5</b>
Report classification	5
Summary of positive themes	6
Management Comments	7
<b>Findings Raised in Prior Internal Audits</b>	<b>8</b>
<b>Considerations for improvement</b>	<b>9</b>
<b>Appendix A: Basis of findings rating and report classification</b>	<b>11</b>
<b>Appendix B: Limitations and responsibilities</b>	<b>14</b>

# Internal audit context

## Background information

The Life Cycle Costing and Asset Planning Methodology Internal Audit is part of the risk-based 2018 - 2019 City of Windsor Internal Audit Risk Assessment and Plan approved by the Executive Committee of Council on June 4, 2018.

The Asset Management (AM) program was introduced in 2013 and is led by the Senior Manager of Asset Planning. Within the AM team there are three Asset Coordinators, two regular full time and one temporary full time, who report to the Senior Manager. The purpose of the AM program is to establish the City of Windsor’s intentions and directions for AM, as formally expressed by its senior management. It confirms the City’s commitment to managing community assets in a short and concise document and sets out the principles which will be adopted in applying AM to achieve the Council’s strategic objectives.

The plan was developed for the management of infrastructure assets that combines multi-disciplinary management strategies (including technical and financial) over the lifecycle of the asset in the most cost-effective manner to deliver a specified level of service. It specifies the activities, resources and timescales required for individual assets (or asset groups) to achieve the organization’s AM Objectives.

Each Asset Coordinator has been assigned respective operating areas/department based on asset/capital management knowledge/experience. On a routine basis, the Asset Coordinators review respective projects undertaken using the AM framework and discuss various project updates such as financial update, risks, escalation items and miscellaneous sections. The City has adopted a practice to deploy a single point of contact (Asset Coordinator) who represents the City’s interests, establishes a rapport with the Department Head as well as Senior City Leadership. In 2017 the City Council also approved the Asset Management Policy and Philosophy and Framework (strategy) documents which formalized the City’s AM direction.

An AM Steering Committee meeting is held on a quarterly basis. One of the agenda items in this meeting is to provide status of the projects to the committee and, where necessary, to discuss major issues in terms of project implementation if necessary.

The chart below depicts the timeline of the development of the AM program.

<b>AMP Inception</b>	<b>AMP Development</b>	<b>AMP Implementation</b>	<b>AMP Monitoring</b>
<b>2009 - 2011</b>	<b>2013</b>	<b>2014 - 2018</b>	<b>2017 - Present</b>

2009 - 2011: AMP Inception	During this time CH2MHIII (now Jacob’s Consulting) assisted the City in developing the following: <ul style="list-style-type: none"> <li>• Governance structure for AM.</li> <li>• Current Situation Assessment by major asset category as well as overall Corporate Assessment.</li> <li>• Draft AMP policy and governance strategies.</li> <li>• Roadmap for implementation.</li> </ul>
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2013: AMP Development	<p>In 2013 the first Corporate Asset Management Plan (AMP) was developed and presented to City Council. The report included <i>Section 7, Planning and Monitoring</i>, which confirmed and or reprioritized projects from the original Roadmap based on observations and lessons learned during the development of the AMP. The projects were identified with targets for completion, some within the next 5 years.</p>
2014 – 2018: AMP Implementation	<p>During this time, the AMP Plan was utilized in the following projects:</p> <ul style="list-style-type: none"> <li>• Developed square footage information for the City’s facilities.</li> <li>• Created Corporate Level of Service and Risk templates/frameworks, and to pilot them with roads, sidewalks and bridges.</li> <li>• Developed a Life Cycle Costing report for Transit Windsor and presented it to City Council.</li> <li>• Approval by City Council of the City’s Asset Management Policy and Strategy</li> <li>• Developed 20-year funding models for the road network providing City Council with an understanding of the impact various funding levels should be expected to have on the road network over a 20-year timeframe.</li> <li>• Lead the facility condition inspection project to obtain objective condition data and 20-year recommendations on preventative and rehabilitation efforts needed for 71 of the City’s major facilities.</li> <li>• Worked with Public Works (PW) Operations to pilot a Zoom technology for sewer condition inspections.</li> <li>• Lead the condition inspection project for Lou Romano Water Reclamation Plant which provided objective condition data and 20-year recommendations on preventative and rehabilitation efforts needed for the plant.</li> <li>• Leveraged Clean Water Waste Water funding to implement the Zoom inspection process for over 9,000 manholes to have more than 80% of the sewer network with objective condition rating. Project also included automation of the data to upload into Hansen and to have the video and inspection reports connected in EIS for self-service viewing of the data.</li> <li>• Worked with Parks to have the Riverfront Shore wall inspected for condition and 20-year preventative and rehabilitation needs.</li> </ul>
2017 – Present: AMP Monitoring, Funding and Lessons Learned	<p>During this phase the following key activities were noted:</p> <ul style="list-style-type: none"> <li>• In 2017 City of Windsor awarded grant funding for Phase 2 of Leadership in Asset Management Program (LAMP) which was to develop tools and guidelines for (WLCC, TBL+ and Business Case). In late 2018, Phase 2 was completed, and the resulting documentation was reviewed and approved by February 2019.</li> <li>• Commenced work with Parks on critical assets in their portfolio, information required for each asset, work order, inspection, and park asset hierarchy to lay the foundation for an asset and work order management system. Project is still underway and at system selection stage.</li> <li>• Continued condition inspections of pollution control plants and pump stations</li> <li>• Development and presentation of the City’s updated AMP, which also ensures compliance to the July 31, 2021 requirements of O.Reg 588/17</li> </ul>

During this phase the AM team has been engaging in extensive lessons learned and regulatory compliance exercises for future amendments to the AMP required in 2023 - 2024.

## ***Scope & objectives***

In 2013, management prepared the AMP based on best information available at the time, pertaining to a number of initiatives/projects laid out in a structured manner from 2013 to next update in 2018/19 (reference to *Section 7* of the plan: Plan Improvement and Monitoring).

Internal Audit (IA) will provide insight to the City as to whether they will be meeting or staying current with new requirements (already laid out for 2019 - 2021) and regulatory compliance requirements of the O.Reg 588/17.

The focus of this internal audit will be to consider the effectiveness of the process and controls management has in place to achieve the following objectives:

### **Asset Management Framework**

1. Actions to plan and monitor improvements to prior (2013) AMP/approach were identified/selected with consideration for priorities, capacity and state of readiness and AM procedures and guidelines support standardized reporting processes.

### **Oversight of AMP Implementation**

2. Updates to AM procedures and associated adoption criteria are made in consideration for lessons learned from prior iterations of the AMP.

The scope of this internal audit includes an assessment of the controls in place to identify, prioritize, plan and oversee AMP roll out since the 2013 AMP, with a focus on initiatives/improvements which have been in sustained operations over the last 12 months (April 1, 2018 to March 31, 2019).

## ***Scope exclusions***

Given the nature of the work, risk considerations and budgeted effort the following elements are explicitly excluded from the scope of the internal audit:

- The design and implementation for AMP being prepared in 2019 for the next term of 5 years;
- Agency, Board & Commissions (ABC) AM planning performed independently of the AM function of the City;
- The design, implementation and operation of the Information and Technology (IT) environment and IT general controls, end user computing controls, IT application controls, data integrity of reports used in IT dependent manual controls; and
- Third party applications and process involvement in the AM function.

# Summary of Internal Audit Results

## Report classification

During the course of internal audit, specific controls were identified which address the control objectives of the internal audit; and there are some recommendations for further improving the process have been noted in terms of developing key metrics to measure departmental performance, standardized reporting on the status of its ongoing projects as well as creating a formalized feedback system which prioritizes key performance indicators.

A detailed narrative of the roles and responsibilities of the AM Team has been established in the business case document. Specific projects approved by the Steering Committee are to be the first to use the tools under the guidance of Asset Planning team. The results and lessons learned are summarized and provided to steering committee for consideration of whether additional changes are required prior to proceeding further.

The AM function is responsible for corporate level projects such as the development of policies and procedures and meeting the requirements of the legislation. Further, the AM Team is also available to assist departments with the implementation of the AM principles and have active involvement in projects where requested. The AM team also assists with the development of master plans for different departments including but not limited to the urban, forestry, storm and active transportation master plans.


Within the AM team are Asset Coordinators who consult with the Senior Manager of asset planning and other applicable stakeholders including department managers and senior leadership team members. These Asset Coordinators perform analyses to assess the status of each ongoing project and potential issues to be communicated to the AMP Team and Steering Committee.




The Asset Coordinators will communicate within the AM Team through meetings which are centered around project report updates that cover topics such as project summary, next steps, risks and miscellaneous. During these meetings escalation items are noted and anything considered to be a key risk is brought to the attention of the AM Steering Committee.

AM Steering Committee meeting is held on a quarterly basis where status of projects and issues in terms of project implementation are discussed among other topics relating to capital project planning. These discussions are recorded in meeting minutes.

Additionally, it has been noted that a lesson learned log is maintained to track potential deficiencies within the existing plan. The lessons learned along with changes to regulation are tracked and considered upon updates to the AMP.

Based on the controls identified and assessed for design as part of the internal audit of the AMP, we have determined that there is reasonable evidence to indicate that:

	No or limited scope improvement	No major concerns noted	Cause for concern	Cause for considerable concern
<b>For the objectives related to AMP &amp; Governance</b>				
Controls over the process are designed in such a manner that there are:				

For the objectives related to <b>Asset Management Plan</b>				
Controls over the process are designed in such a manner that there are:				
For the objectives related to <b>AM Monitoring &amp; Reporting</b>				
Controls over the process are designed in such a manner that there are:				
For the objectives related to <b>Lessons Learnt &amp; Regulation Preparedness</b>				
Controls over the process are designed in such a manner that there are:				

## Summary of positive themes

Based on the discussion with management and documentation reviewed, the following positive themes were noted:

### 1. AM Governance

- a. AM function has a governance structure in place as defined within the AM Framework with an AM Network Team and Asset Planning Steering Committee which has representation from corporate leadership team.
  - i. Within the Asset Planning Steering Committee is CFO, Corporate Leader for Parks, Corporate Facilities, Recreation and Culture, Corporate Leader of Environmental Protection and Infrastructure Services, City Engineer, Executive Director of Operations, Executive Director of Information Technology/CIO, City Planner, City Solicitor and Senior Manager of Corporate Facilities. The mandate of this committee is ensuring the development and implementation of funding strategies to support implementation of this policy, based on the available resources.
  - ii. AM also has an AM Network Team which consist of managers nominated by each department to represent their department on the AM Network Team. The mandate of the AM Network team is to:
    - 1. Report to the department heads of the various operating departments and facilitate implementation of AM within their departments. Department heads are responsible for ensuring that the new ways of doing business are adopted and becomes part of the City’s operating culture as implementation progresses.
    - 2. Work collaboratively with the SMAP to maintain the AM Roadmap, develop AM processes and tools, and prepare AM Plans.
    - 3. Track and report on AM benefits at the departmental level
    - 4. Ensure data integrity and accuracy for the assets managed by the department
    - 5. Participate in regular AM coordination and planning meetings of the AM Network
- b. Within the AM Team is Senior Manager of Asset Planning and Asset Coordinators. The AM Team operates in developing standardized policies and procedures along with taking a lead on key asset planning initiatives to enable compliance with the *Ontario Regulation 588/17*.
- c. The AM function also assists departments in meeting the requirements of grants and actively engages in larger capital projects undertaken by the departments including the projects selected as a sample.

### 2. Asset Management Plan

- a. The AMP takes into consideration the triple bottom line (TBL) framework which encourages new projects to take into consideration social and environmental concerns just as they do on profits. This TBL framework was evidenced through inquiry with the AM Team as well as inspection of the project status reports.

- b. The AMP utilizes two main cycle costing approaches simple and advanced and both are to be used for the AM as per need.
- c. AM provides training and resource materials to the department heads for the development of projects where requested.
- d. For the projects selected as a sample for this internal audit, feedback was received from the Departments which commended the AM team's performance highlighting AM Team's contribution to the asset planning and grants management.

### 3. Monitoring & Reporting

- a. AMP is developed including the projects that are to be implemented as part of the plan considering the guidelines defined for asset condition assessments within the AM framework and the requirements of the *Ontario Regulation 588/17*, by the AM Team and are approved by the Asset Planning Steering Committee.
- b. The plan is also further developed as projects are completed within the plan execution over the years. As projects are completed the plan is able to be monitored and the effective of the AMP and the associated team are reported.

### 4. Lessons Learned & Regulation Preparedness

- a. AM Team has performed a lesson learned exercise for the AMP 2013 with risk assessment of tasks which need to be completed and have been planned for execution within the next iteration of the AMP for 2018.
- b. From the *Ontario Regulation 588/17* a sample of three requirements:
  - i. development of municipality budget,
  - ii. alignment of AMP with financial plans and
  - iii. obtaining input from residents and interested parties were reviewed.
- c. Based on inspection of the related section in the AMP, it was noted that the plan addresses the mentioned requirements within the relevant sections.

## ***Management comments***

The report reflects an accurate summary of the AM program as it has developed over the past 10 years. Considerations for improvement have been reviewed and the Senior Manager of Asset Planning has reinstated the template for project reporting, the team have also developed various questions for the customer service program that will be put in place to receive formal feedback from departments on the ongoing support provided by the AM group. Additionally Administration will be bringing forward a request during the 2020 budget deliberations to convert the temporary Asset Coordinator position to full time to sustain current levels of service.

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Title: Senior Manager of Asset Planning

Date: August 7, 2019



# *Findings Raised in Prior Internal Audits*

The following finding was noted by a previous internal audit team and relates to AM. The finding was noted in the report Post Construction Audit Report on the 400 City Hall Square East Building issued by the Auditor General to Council dated December 2009. Therefore, consideration of the finding and management resolution thereof was deemed relevant to the scope of our work. Below is a summary of the findings as well as the actions we undertook to evaluate the reasonable closure thereof.

## **1. Formalize and enhance the City's Life Cycle Costing (LCC) strategy**

### **Observation:**

It was noted that the CAO consider the merits of developing an LCC strategy, which has significant value-added potential to provide the City opportunities to achieve better value for money in all its (1) procurement activities, (2) the delivery of products and services and (3) in municipal performance measurement.

### **Closure Summary:**

Internal Audit reviewed the evidence received and ascertained that tools like Triple Bottom Line Plus (TBL+), Whole Life-Cycle (WLC) and Business Case Evaluation (BCE) developed the Leadership Asset Management Program (LAMP) have been incorporated into the Corporate Asset Plan. Internal Audit obtained and reviewed the Council approval for the use of the above-mentioned tools. Additionally, we inspected evidence of Council delegating authority to the Asset Planning Steering Committee for oversight on implementation of the framework.

# Considerations for improvement

## 1. Enhance and implement standardized project status report

### Observation:

Currently, the AM Team meets and discusses the status updates related to ongoing projects through the use of a project status report. These status reports are undertaken by the assigned asset coordinator however, the reports vary in content. Further, for projects which are cancelled, no report is generated. In one sample (Parks Shore wall), we noted that the status report included the following sections; project summary, next steps, financial update, risks, escalation items and miscellaneous sections however, for another sample (the Zoom for Sewers) the report includes overall project status, schedules and milestones. It is possible that key updates or discussion items may be missed over time.

### Considerations:

Management should consider a standardized project status report to enable fulsome updates and discussions are had regarding ongoing projects among the AM Team. Such items would include required sections and room for additional project specific items. When a required section is not applicable to a project such an indication should be made with supporting (simple) rationale.

## 2. Obtain feedback and develop key performance indicators

### Observation:

Management discussion indicated feedback was received commending the performance of the AM Team, however, mechanisms to obtain formal feedback; measure and report on the performance of the AM Team in regular and repeatable manner were not developed or documented. There is a risk that the AMP may not be achieving the desired performance indicators as set out by the plan and appropriate feedback whether constructive or positive is not being obtained from all users.

### Considerations:

Management should establish a formalized feedback system through the use of surveys and formal de-brief meetings with department heads upon completion of the project. Additionally, all users impacted by the project development should be encouraged to use the survey in order to obtain a more holistic view of the project's results. The survey should look to ask the user's satisfaction as well as integrate the key performance indicators from the plan to ensure that the plan's objectives are being met through the AM Team's activities.

The development of the formal feedback system and key performance indicators should be facilitated with the AM Team and steering committee members to ensure proper governance and oversight of the feedback model and core indicators of the plan.

## 3. Implement a Budgeting and Resourcing Model

### Observation:

The AM Team is brought on board to assist with capital projects implementation as needed by the City departments. There is currently no model by which capacity/demand on the function is regularly assessed and actions planned/taken. There is a risk that City demands may not be met by the function when demand increase or that the function has excess unused capacity if demand were to decline.

### Considerations:

Management should consider developing and implementing an approach to forecasting functional demand in time to seek financial support/adaptation and talent management needs.

# Appendix A: Basis of findings rating and report classification

## Findings rating matrix

Audit findings rating		Impact		
		Low	Medium	High
Likelihood	Highly likely	Moderate	Significant	Significant
	Likely	Low	Moderate	Significant
	Unlikely	Low	Low	Moderate

## Likelihood consideration

Rating	Description
<b>Highly likely</b>	<ul style="list-style-type: none"> <li>History of regular occurrence of the event.</li> <li>The event is expected to occur in most circumstances.</li> </ul>
<b>Likely</b>	<ul style="list-style-type: none"> <li>History of occasional occurrence of the event.</li> <li>The event could occur at some time.</li> </ul>
<b>Unlikely</b>	<ul style="list-style-type: none"> <li>History of no or seldom occurrence of the event.</li> <li>The event may occur only in exceptional circumstances.</li> </ul>

## Impact consideration

Rating	Basis	Description
<b>HIGH</b>	Dollar Value <sup>1</sup>	Financial impact likely to exceed \$250,000 in terms of direct loss or opportunity cost.
	Judgmental Assessment	<p><b>Internal Control</b> Significant control weaknesses, which would lead to financial or fraud loss.</p> <p><b>An issue that requires a significant amount of senior management/Board effort to manage such as:</b></p> <ul style="list-style-type: none"> <li>• Failure to meet key strategic objectives/major impact on strategy and objectives.</li> <li>• Loss of ability to sustain ongoing operations: <ul style="list-style-type: none"> <li>– Loss of key competitive advantage/opportunity</li> <li>– Loss of supply of key process inputs</li> </ul> </li> <li>• A major reputational sensitivity e.g., Market share, earnings per share, credibility with stakeholders and brand name/reputation building.</li> </ul> <p><b>Legal/Regulatory</b> Large scale action, major breach of legislation with very significant financial or reputational consequences.</p>
<b>MEDIUM</b>	Dollar Value	Financial impact likely to be between \$75,000 to \$250,000 in terms of direct loss or opportunity cost.
	Judgmental Assessment	<p><b>Internal Control</b> Control weaknesses, which could result in potential loss resulting from inefficiencies, wastage, and cumbersome workflow procedures.</p> <p><b>An issue that requires some amount of senior management/Board effort to manage such as:</b></p> <ul style="list-style-type: none"> <li>• No material or moderate impact on strategy and objectives.</li> <li>• Disruption to normal operation with a limited effect on achievement of corporate strategy and objectives.</li> <li>• Moderate reputational sensitivity.</li> </ul> <p><b>Legal/Regulatory</b> Regulatory breach with material financial consequences including fines.</p>
<b>LOW</b>	Dollar Value	Financial impact likely to be less than \$75,000 in terms of direct loss or opportunity cost.
	Judgmental Assessment	<p><b>Internal Control</b> Control weaknesses, which could result in potential insignificant loss resulting from workflow and operational inefficiencies.</p> <p><b>An issue that requires no or minimal amount of senior management/Board effort to manage such as:</b></p> <ul style="list-style-type: none"> <li>• Minimal impact on strategy.</li> <li>• Disruption to normal operations with no effect on achievement of corporate strategy and objectives.</li> <li>• Minimal reputational sensitivity.</li> </ul> <p><b>Legal/Regulatory</b> Regulatory breach with minimal consequences.</p>

<sup>1</sup> Dollar value amounts are agreed with the client prior to execution of fieldwork.

## ***Audit report classification***

<b>Report Classification</b>	<b>The internal audit identified one or more of the following:</b>
<b>Cause for considerable concern</b>	<ul style="list-style-type: none"> <li>• Significant control design improvements identified to ensure that risk of material loss is minimized, and functional objectives are met.</li> <li>• An unacceptable number of controls (including a selection of both significant and minor) identified as not operating for which sufficient mitigating back-up controls could not be identified.</li> <li>• Material losses have occurred as a result of control environment deficiencies.</li> <li>• Instances of fraud or significant contravention of corporate policy detected.</li> <li>• No action taken on previous significant audit findings to resolve the item on a timely basis.</li> </ul>
<b>Cause for concern</b>	<ul style="list-style-type: none"> <li>• Control design improvements identified to ensure that risk of material loss is minimized, and functional objectives are met.</li> <li>• A number of significant controls identified as not operating for which sufficient mitigating backup controls could not be identified.</li> <li>• Losses have occurred as a result of control environment deficiencies.</li> <li>• Little action taken on previous significant audit findings to resolve the item on a timely basis.</li> </ul>
<b>No major concerns noted</b>	<ul style="list-style-type: none"> <li>• Control design improvements identified, however, the risk of loss is immaterial.</li> <li>• Isolated or “one-off” significant controls identified as not operating for which sufficient mitigating back-up controls could not be identified.</li> <li>• Numerous instances of minor controls not operating for which sufficient mitigating back-up controls could not be identified.</li> <li>• Some previous significant audit action items have not been resolved on a timely basis.</li> </ul>
<b>No or limited scope for improvement</b>	<ul style="list-style-type: none"> <li>• No control design improvements identified.</li> <li>• Only minor instances of controls identified as not operating which have mitigating back-up controls, or the risk of loss is immaterial.</li> <li>• All previous significant audit action items have been closed.</li> </ul>

# ***Appendix B: Limitations and responsibilities***

## ***Limitations inherent to the Internal Auditor's work***

### ***Internal control***

Internal control systems, no matter how well designed and operated, are affected by inherent limitations. These include the possibility of poor judgment in decision-making, human error, control processes being deliberately circumvented by employees and others, management overriding controls and the occurrence of unforeseeable circumstances.

### ***Future periods***

Our assessment of controls is for the period specified only. Historic evaluation of effectiveness is not relevant to future periods due to the risk that:

- the design of controls may become inadequate because of changes in operating environment, law, regulation or other; or
- the degree of compliance with policies and procedures may deteriorate.

## ***Responsibilities of management and Internal Auditors***

It is management's responsibility to develop and maintain sound systems of risk management, internal control and governance and for the prevention and detection of irregularities and fraud. Internal audit work should not be seen as a substitute for management's responsibilities for the design and operation of these systems.

We endeavor to plan our work so that we have a reasonable expectation of detecting significant control weaknesses and, if detected, we shall carry out additional work directed towards identification of consequent fraud or other irregularities. However, internal audit procedures alone, even when carried out with due professional care, do not guarantee that fraud will be detected.

Accordingly, our examinations as internal auditors should not be relied upon solely to disclose fraud, defalcations or other irregularities which may exist.

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