



Audit of the Enterprise Work Management Solution (EWMS): Lessons Learned for Future Large Information Technology Projects

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TORONTO



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Executive Summary

EWMS is designed to improve the work management process and to integrate with the City’s shared services

The Auditor General’s 2023 Work Plan¹ included an audit of the City’s Enterprise Work Management Solution (EWMS), also referred to as the EWMS program. Since Toronto’s amalgamation in 1998, City divisions have used various work management systems. These systems mostly operate separately from each other and are difficult to upgrade.

The new EWMS is designed to improve the work management process by integrating and replacing these legacy systems. Benefits include improved service response times and improved equipment and materials management. Integration with other divisions and shared services, such as 311 and SAP² will complement and/or expedite service delivery activities.

EWMS implementation will be completed in three phases

EWMS is a large and complex information technology (IT) project that is being implemented in three phases, across multiple City divisions. It has encountered many challenges including the COVID-19 pandemic. This audit examined how the EWMS program was planned and governed, including whether the program met its budget and timelines, the divisions’ operational needs, and the overall program objectives.

EWMS is currently in phase one of its implementation

EWMS is currently in phase one of its implementation and planning for phases two and three is underway. The focus of our audit was on phase one, which started in 2013 and according to management is scheduled to be completed by year end 2023.

Work management group formed in 2011

In 2011, the following four City divisions formed a work management group to evaluate the feasibility of an enterprise-wide work management system that could be shared and integrated across divisions:

- Toronto Water (TW)
- Parks, Forestry & Recreation (PF&R)
- Transportation Services (TS)
- Solid Waste Management Services (SWMS)

¹ <https://www.toronto.ca/legdocs/mmis/2023/au/bgrd/backgroundfile-234051.pdf>

² SAP – “Systems, Applications, and Products in Data Processing.” This system is used to manage business functions, processes, transactions, and data.

Implementation is incomplete after more than 10 years

In 2013, the Enterprise Work Management Program Charter – Planning and Design Phase was approved by the Division Heads to formally initiate this program. After more than 10 years, the program has not fully achieved its intended benefits as the EWMS implementation is still ongoing. We have identified areas for improvement in project planning, governance, and execution of this program.

Lessons learned also for City's other technology projects

The findings noted in this audit provide lessons learned for not only phases two and three of EWMS, but also for the City's other technology projects, particularly those that are cross divisional or enterprise wide.

Previous Auditor General reports raised concerns with large technology systems implementation

These issues are not new—the Auditor General raised concerns in these areas in previous reports including:

- [Information Technology Projects Implementation: Information Privacy and Cybersecurity Review of Human Resource System](#), February 3, 2021
- [Information Technology Infrastructure and Asset Management Review: Phase 2: Establishing Processes for Improved Due Diligence, Monitoring and Reporting for Effective IT Projects and Asset Management](#), June 28, 2018
- [Financial Planning Analysis and Reporting System \(FPARS\) – A Large Scale Business Transformation/Information Technology Project](#), February 28, 2013

Exhibit 1 provides a list of reports and relevant recommendations. We have made a recommendation in this report to ensure these are incorporated in the Technology Services Division's (TSD) project management framework.

The audit identified areas that require improvement in project planning, governance, and execution

The City needs to change the way it plans, governs, and executes its large technology projects. As the City moves to phases two and three of the EWMS implementation, management should ensure the program mandate is clearly defined and communicated with stakeholders. All program partners must be engaged in defining the budget, scope, timelines, and key deliverables. They must also understand the program risks, assumptions, and constraints.

The audit identified the following areas that require improvement:

A. Project Planning

- Develop a comprehensive program charter with overall budget and timelines.
- Establish a performance measurement framework to measure the achievement of program goals regularly.
- Involve and communicate regularly with all stakeholders whose systems or processes are part of the implementation.

B. Project Governance

- Redesign program status dashboard criteria to be quantifiable, measurable, and reliable.
- Hold consistent Executive Steering Committee meetings and take effective meeting minutes.
- Report to City Council on complete project budget and costs.
- Conduct timely reporting on emerging risks that may cause project delays and budget overruns, and impact on benefits realization.

C. Project Execution

- Improve time management and controls to minimize delays and cost overruns.
- Timely monitoring and accurate reporting of project progress and benefits.
- Improve software license management and utilization.
- Ensure business processes are designed and staff training is tailored to meet user needs prior to system go-live.³
- Maintain and retain key documentation and develop strategies to address knowledge transfer issues when staff leave the organization.

D. Project Risk Management

- Perform risk assessments for system upgrades and cloud migrations.
- Ensure stakeholders approve action plan to address potential risks and delays.
- Incorporate audit recommendations to the TSD's project management framework.

³ "Go live" refers to when an IT system is ready for use by its end users.

Phase One Implementation Status

\$2.9 million worth of deliverables from the \$15.8 million vendor contract have been descoped

The work related to phase one is still in progress (**Table 1**), and \$2.9 million worth of deliverables from the \$15.8 million vendor contract (**Table 2**) have been descoped and moved from phase one to future phases.

The deliverables that have been descoped from phase one and deferred to phases two and three include water service requests and integration with supporting systems and applications, such as the billing system, and some PF&R tree and ravine permit functions. The City plans to award new vendor contracts for the EWMS implementation of phases two and three in 2024.

Table 1: EWMS Project Phase One Implementation Status

City Division	Implementation Status
Solid Waste Management Services	<ul style="list-style-type: none"> Go-live implementation for Facilities and Equipment Maintenance users was completed in April 2022. Project closure is scheduled for completion by the end of 2023.*
Transportation Services	<ul style="list-style-type: none"> Go-live implementation for Operations and Maintenance users was completed in October 2022. The EWMS system was not fully utilized by TS during the 2022–2023 winter maintenance season. (See Section C.3.) Project closure is scheduled for completion by the end of 2023.*
Parks, Forestry & Recreation	<ul style="list-style-type: none"> Go-live implementation for Urban Forestry users has been rescheduled from November 13, 2023 to December 2023. Training demonstrations and simulated launch are in progress. Some system development and implementation is deferred to phase two.
Toronto Water	<ul style="list-style-type: none"> Requirements workshops are scheduled for completion by November 2023.* System development and implementation is deferred to phases two and three.

* EWMS Program Status Report, Executive Steering Committee, September 26, 2023

Table 2: Descoped Work from EWMS Phase One Implementation

Description of Work Deferred from Phase One	Cost (\$ million)
TW phase one implementation	2.3
PF&R work related to tree permits and custom reporting	0.5
EWMS integration work with SAP and permits management system	0.1
Total	2.9

Phase One Budget Will Be Exceeded

The phase one budget reported to the Executive Steering Committee for the EWMS program on June 21, 2023 was \$52.3 million.

Additional \$7.5 M required to complete the original phase one scope of work

As of August 2023, the EWMS program’s phase one spending was \$51.8 million. However, approximately \$2.9 million of work has been deferred from the current vendor contract in phase one to future phases. In addition, \$4.6 million will be due upon completion of the existing work in progress. This means that a total of \$7.5 million of additional spending will be required to complete the original phase one scope of work, bringing the total to \$59.3 million. The EWMS current reported budget of \$52.3 million will therefore be exceeded by \$7 million.

The total costs of EWMS are estimated be at least \$92.4 M

Management estimates that phases two and three of the EWMS program will cost \$33.1 million to complete. If this estimate is accurate, the total costs of the EWMS will be \$92.4 million (Table 3). However, the final costs will not be known until the contract award for phases two and three is completed.

Table 3: EWMS Program Cost/Budget

Description	Cost (\$ million)
Phase one budget reported to Executive Steering Committee	52.3 *
Estimated overall program costs	
EWMS phase one actual costs as of August 2023	51.8
Work descoped from phase one to future phases (Table 2)	2.9
Remaining vendor contract payments	4.6
Total estimated cost of phase one:	59.3
Estimated phases two and three budget	33.1
Total estimated cost of all three phases:	92.4

* Management advised that the phase one budget of \$52.3 million was carried forward from the previous project team. Management has advised that updated budget figures will be reported to City Council by June 2024 as recommended by the Auditor General.

EWMS Program Budget and Actual Cost Is Underreported to City Council

EWMS program costs were underreported to City Council

EWMS’s budget and actual costs are reported to City Council through the annual budget process and the Chief Financial Officer’s (CFO) quarterly Capital Variance Report. We found that the amounts provided to City Council in both 2023 reports were underreported. The budget figure presented for 2023 was \$41.7 million; however, this figure only includes the individual program budgets that were consolidated under TSD since 2021. Divisional budgets and expenditures from 2013 to 2020 were not included in the TSD’s consolidated budget figure. This did not provide City Council with a full picture of the total investment to implement EWMS.

We have recommended that management develop a process for reporting to City Council on the consolidated expenditures and budget for cross divisional projects.

Changing Program Completion Timelines Present Operational and Financial Risks - Benefits May Not Be Realized as Intended

Unclear EWMS implementation timeline

According to the Executive Steering Committee meeting minutes from June 2015, the targeted completion date for all three phases of the EWMS program was the end of 2020. These program end dates were estimated prior to the completion of procurement.

2020 target completion date only included phase one

Later, in April 2017, following completion of vendor selection, the EWMS Program Cost Benefit Assessment was presented to the City Manager and Deputy City Managers. This assessment showed that only phase one was to be completed by December 2020.

Full EWMS program now targets a 2027 completion

As of the date of this report the phase one implementation is still in progress. The July 2023 draft program charter for EWMS phases two and three includes a budget of \$33.1 million from 2023 to 2026 and a target completion timeline of 2027.

The changing timelines, project delays, and additional project costs will affect the City's return on investment. Other risks include potential operational disruption due to the risk of legacy systems becoming unstable once the vendor stops support for these systems.

2017 Cost Benefit Assessment Is Outdated

Cost Benefit Assessment could not be verified due to a lack of supporting evidence and has not yet been updated for increase in costs and time delays

We found that the EWMS Program Cost Benefit Assessment prepared by TSD in 2017 had a projected 11.8 per cent annual return on investment of \$38.9 million for phase one and a payback period of approximately 8.5 years. However, management could not provide support for these figures and advised that there are information gaps in the calculations. They are currently updating and reviewing the detailed calculations with the divisions.

Given the extent of changes to the investment and timelines, a new Cost Benefit Assessment is needed. Details of our findings are reported in the Audit Results section.

Implementation Delays Risk Realization of Benefits

Need for timely implementation of IT solutions due to rapid technological change

Because information technology matures rapidly, it is important to develop a clear timeline that maximizes benefits before the technology becomes obsolete. A delayed implementation may render the existing systems less feasible due to evolving technologies and lead to other consequences such as increased operating costs, lower efficiency, missed opportunities, and resistance to change.

For example, the current EWMS solution is run on-premises.⁴ However, the vendor has advised that after 2025 they will end support for this version of the EWMS software. Upgrading to the vendor's latest release will require significant changes and a reassessment of the current solution implemented on the City's servers. This could further delay the benefits realization on the current in progress implementation.

Improve Project Governance and Program Status Dashboards

Project governance needs improvement to support timelier communication

Given the EWMS program involves multiple divisions and is complex, it necessitates appropriate project governance and co-sponsorship at the executive level. Program communications need to be shared in a timely manner and contain complete and accurate information that not only cites project achievements but also documents potential risks and changes to initial plans.

Program dashboards need better disclosure of risks

The program dashboards we reviewed did not consistently identify risks to the EWMS program. Some of these risks materialized and had significant impacts on project finances and timelines.

Previous Audit Report Recommendations Should be Incorporated in TSD's Governance Framework

The Auditor General made several recommendations to strengthen governance, monitoring, and reporting in previous reports

The Auditor General has made several recommendations in previous reports to strengthen governance, monitoring, and reporting. In her report entitled "Information Technology Infrastructure and Asset Management Review: Phase 2: Establishing Processes for Improved Due Diligence, Monitoring and Reporting for Effective IT Projects and Asset Management, June 28, 2018," adopted by City Council at its July 23, 2018, meeting, the following recommendation was included:

"City Council request the Chief Information Officer to develop a reporting mechanism and criteria for reporting to the Executive Modernization Committee and respective Executive Project Sponsors on project implementation delays and unused software licences with reports to include as a minimum:

- a. Accumulated financial impact of delays*
- b. Unused assets, licences and solutions*
- c. Forgone benefits as a result of project implementation delays*
- d. Plans in place to mitigate the impact of delays."*

⁴ "On Premises" means the software is run on computer systems and servers that are operated on-site (versus on the Cloud).

Report on delays and underutilized licenses not prepared for Executive leadership

We found that the project implementation delays and underutilized licenses were not reported to the City's executive leadership team. These issues should have been presented to the Executive leadership at the City and the Steering Committee to underscore the importance of avoiding further delays.

Conclusion

EWMS program is delayed and will exceed its budget for phase one

The EWMS program will exceed its budget for phase one and has not met its overall program timelines. Based on the details provided the budget will be exceeded by at least \$7 million for phase one.

Overall program goals not yet achieved

As of November 2023, only two out of the four divisions have implemented phase one. The integration and harmonization of divisional work management processes and systems have not been completed. This has resulted in the overall program goals not being achieved to improve operational effectiveness, operational efficiency, customer service, and accountability. However, as the implementation continues, and management updates its benefits realization, the City will be able to assess and quantify the benefits.

Lessons learned from the first phase of EWMS can be applied to the next EWMS phases and other technology projects

We have made 14 recommendations in this report. The key lessons learned from this audit need to be applied not only to the EWMS program, but also to other large IT projects of the City to improve project planning, governance, and execution, and realize benefits as intended by these projects.

The City must ensure there is proper planning, communication, and preparation for phases two and three to avoid repeating the issues that have occurred to achieve the intended benefits for the City and its residents.

Thank you to management and staff

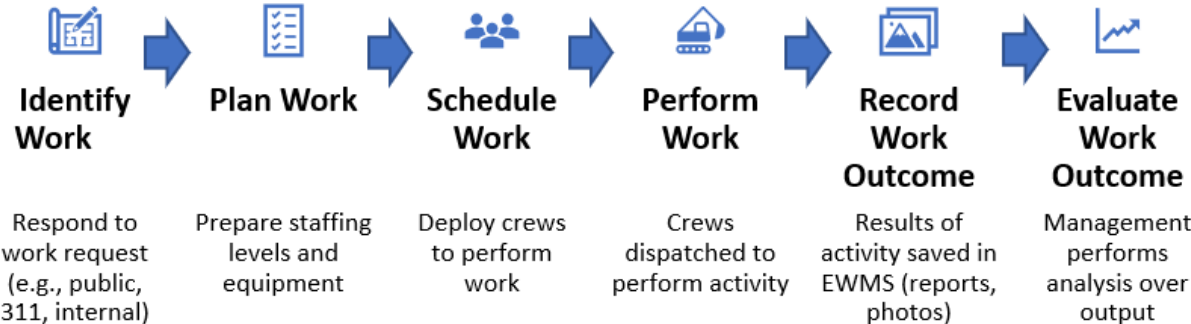
Finally, we would like to express our sincere appreciation for the co-operation and assistance we received during our audit from the management and staff of the Technology Services, Toronto Water, Transportation Services, Parks, Forestry & Recreation, Solid Waste Management Services, Customer Experience - 311 Toronto, Pension, Payroll & Employee Benefits, Purchasing & Materials Management, and Financial Planning divisions.

Background

What is EWMS?

EWMS is intended to improve the work management process, service response times, and equipment and materials management, and integrate with the City’s shared services which include 311 and SAP.

Figure 1: Work Management Lifecycle



Why implement EWMS?

Since Toronto’s amalgamation in 1998, the City divisions have been using multiple systems and older legacy systems. These systems mostly operate separately from each other and are difficult to upgrade. To create integrated workflow and efficiencies, the City needed a solution where divisions can share and view information more efficiently. Further, as the systems grow older, they may become costly to maintain and difficult to upgrade as vendors typically stop supporting older versions.

To improve operational effectiveness and efficiency, the Enterprise Work Management Solution (EWMS) was chosen to replace the legacy work management systems, and integrate with the City’s other systems, with the goal of transforming the work management processes.

Scope of the EWMS program’s three phases

EWMS is being implemented in three phases for selected business units within the four divisions as summarized in **Table 4**.

Table 4: EWMS Program Scope by Division and Phase

Division	EWMS Phase One	EWMS Phase Two (Draft)	EWMS Phase Three (Draft)
Solid Waste Management Services	<ul style="list-style-type: none"> Facilities & Equipment Maintenance 	<ul style="list-style-type: none"> Collections & Litter Operations 	<ul style="list-style-type: none"> To be determined (TBD)
Parks, Forestry & Recreation	<ul style="list-style-type: none"> Urban Forestry⁵ 	<ul style="list-style-type: none"> Parks, Parks Planning and Strategic Initiatives, Capital Projects Design and Delivery 	<ul style="list-style-type: none"> Community Recreation
Transportation Services	<ul style="list-style-type: none"> Operations & Maintenance⁶ 	<ul style="list-style-type: none"> Road Operations & Maintenance – Signs & Markings Traffic Management Permits & Enforcements Business Performance 	<ul style="list-style-type: none"> Policy & Innovation Project Design & Management Strategic Management Office
Toronto Water	<ul style="list-style-type: none"> Distribution & Collection Customer & Technical Support Water Infrastructure Management⁷ 	<ul style="list-style-type: none"> Customer & Technical Support - Customer Care Centre 	<ul style="list-style-type: none"> Water Treatment & Supply Wastewater Treatment Environment & Administration

⁵ Some parts of the EWMS phase one implementation for Urban Forestry were descope and deferred to a future phase.

⁶ Implementation included assets and work management related to winter maintenance. Does not include Signs and Markings.

⁷ The EWMS phase one implementation for Distribution & Collection, Customer & Technical Support, and Water Infrastructure Management was descope and deferred to a future phase.

Audit Results

This section of the report contains the findings from our audit work followed by specific recommendations.

A. Strengthen Project Planning Processes

A.1. Program Charter Should Include Overall Budget and Timelines

Project charter sets a clear direction for the project and outlines expectations of the stakeholders

Technology Services Division's (TSD) portfolio governance framework requires certain mandatory documents to be prepared for all IT projects. One such mandatory document is a project charter; developing this charter is the first step in TSD's project definition phase. The project charter template specifies that:

"The Project Charter sets a clear direction for the project and outlines expectations of the sponsor or steering committee.... The Project Charter forms a common agreement on all main aspects of the project (i.e., scope, goals, objectives, etc.) among those involved, including project manager, team members, sponsor, stakeholders, and partners. Once approved, the charter is signed forming the basis for future project decisions."

The initial EWMS Program⁸ Charter was prepared in May 2013 for the planning and design phase. From 2015 to 2020, seven additional project charters were prepared by divisional stakeholders for each stage of the implementation. These project charters were prepared by the divisions separately instead of in coordination with each other.

No program-level charter in place, and five divisional project charters were not signed off by all stakeholders

We found that the initial charter did not include project timelines and the total cost to complete the project. The project costs only included salaries and wages for one program manager and professional services to assist with the procurement process. We noted that five out of the eight project charters (**Table 5**) were not signed off by all stakeholders.

⁸ An IT program is a collection of projects.

Table 5: Approval Status of Charters

Project Charter Description	Signed off by All Project Stakeholders (Yes/No)
Plan & Design of EWMS	Yes
Business Requirements Validation	Yes
Customer Experience (311)	Yes
Common Configurations and Integrations (TSD)	No
Parks, Forestry & Recreation (PF&R)	No
Toronto Water (TW)	No
Transportation Services (TS)	No
Solid Waste Management Services (SWMS)	No

Lack of clarity over EWMS program budget

Due to the lack of an approved program-level charter, the overall program budget was not clearly identified. We reviewed project documentation from 2017 to 2019 and found it was not clear whether the budget was for phase one alone or the entire EWMS program’s three phases.

Later updates by the EWMS program management team to the Executive Steering Committee presented a separate phase one budget, and an additional budget for phases two and three.

Phase two and three program charter needs to be finalized

A draft program-level charter for phases two and three was prepared during the audit. This should be finalized, and management should ensure it provides clear direction on the project timelines, budget, goals, objectives, and expectations of the project sponsors.

A.2. Establish a Performance Measurement Framework to Measure the Achievement of Program Goals

EWMS program goals were not measured on a regular basis to assess if they were being achieved

Performance measures were developed for the 2013 EWMS Program Charter to determine if the program goals and objectives were being met. The performance measures included time spent on scheduling resources, work management integration with SAP, better and faster responses to customers, and number of reports. However, program management has not fully developed the metrics to assess these performance measures and the tools to capture the information and data.

The goals of the EWMS program are to improve:

- operational effectiveness
- operational efficiency
- customer service
- accountability

Establish a performance measurement framework

The program management team should establish a performance measurement framework that is quantifiable and measurable.

Recommendation:

- 1. City Council request the Chief Technology Officer to ensure:**
 - a. All technology projects have an overall program-level charter developed that clearly defines the program implementation budget, timeline, and performance measurement, and is approved by all stakeholders**
 - b. An overall program-level charter for the remaining phases of the Enterprise Work Management Solution that clearly defines the program implementation budget, timeline, and performance measurement, and is approved by all stakeholders**
 - c. A performance measurement framework is established to measure the achievement of technology project goals on a regular basis until the project is completed.**

A.3. Stakeholder Communication and Involvement Should Be Improved

All stakeholders must be identified and their input should be sought

TSD’s portfolio governance framework requires the program sponsor to identify the project’s dependencies with other initiatives or projects in the definition and planning phase:

“All stakeholders must be identified and managed appropriately. Ensure recipients of and those impacted by change are also identified.

Whenever possible, input from the stakeholders should be sought, since their input can help to define, clarify, drive, change, and contribute to the scope and, ultimately, the success of the project.”

Once these dependencies are identified, communication with the stakeholders should be established as part of building stakeholder relations. We found that the EWMS program planned to have integration with other shared services initiatives underway at the City. However, in some cases, these stakeholders were not always fully engaged or aware as work began on the EWMS integration.

Lack of stakeholder engagement

The project team started to work on several shared services initiatives before completing a change impact assessment. In the case of the EWMS integration with the City’s enterprise-wide time reporting system, this was descoped from the phase one deliverables after spending \$65,500 on vendor workshops and integration design and build. The City’s Pension, Payroll and Employee Benefits (PPEB) division’s senior management advised that they did not approve the proposed integration design.

Communication with stakeholders requires improvement during planning phase

In another example, the City’s legacy case management system was due to be replaced with a new system by 2021. Despite the expected transition to a new system, the integration with the legacy system proceeded in 2018. The work was stopped in 2020, after spending \$266,237, because it was to be replaced by a new Customer Relationship Management (CRM) solution in 2021. According to management, some of this work was leveraged to connect 311’s new CRM with the EWMS.

Early stakeholder involvement is critical for the project to succeed. Their input should be obtained during the project definition and planning phases to help define and determine the scope and avoid unnecessary spending.

Recommendation:

2. **City Council request the Chief Technology Officer to leverage the Technology Services Division’s Stakeholder Management Plan to improve stakeholder engagement, coordination, and communication for the remaining phases of implementing the Enterprise Work Management Solution.**

B. Strengthen Project Governance

B.1. Program Status Dashboard Criteria Should be Quantifiable, Measurable, and Reliable

Dashboard provides a snapshot of key performance indicators

A project dashboard provides a snapshot of key performance indicators such as scope, schedule, and costs; it also highlights risks and critical issues. TSD’s program status dashboard is used to track and monitor the progress of the EWMS program. It shows the status and progress of the program in a visual format, which is reported to the Executive Steering Committee as part of the overall status update presentation provided each quarter.

To measure the EWMS program’s overall status, three performance criteria and traffic light indicators (red, yellow, green; see **Table 6**) are used to determine the rating of the five-performance metrics shown on the status dashboard (**Figures 2, 3, and 4**).

Table 6: TSD's Traffic Light Indicator Criteria

	Program Health	Scope and Schedule	Budget
	Program Health to be at green, if any 2 or more other indicators are green (scope, schedule and budget)	Project is on track with manageable issues that will not impact the project scope or schedule	More than 80% and less than 100% of Forecasted Budget spent (>80% and <100%)
	Program Health to be at yellow, if any 2 or more other indicators are yellow	Project is showing signs of trouble that could impact the scope and/or schedule. However, if timely action is undertaken, the project will be back on track with no impact to scope or schedule	65% - 80% of Forecasted Budget spent
	Program Health to be at red, if 1 or more indicators are red	Project is experiencing serious problems that will impact scope and/or schedule. The sponsor/steering committee will need to approve a Change Request to re-baseline and bring this project back on track	Less than 65% or more than 100% of Forecasted Budget spent (100%)

2 of 5 traffic light indicator criteria are not evaluated and display in the dashboard

We noted that although the dashboard has five performance metrics (Figures 2, 3, and 4), there are only three traffic light criteria. There are no criteria to determine the status of the benefits achieved. The traffic light criteria should be revised to include all components of the dashboard, so they are quantifiable and measurable:

- **Budget** – Measures the amount spent out of the forecasted budget. However, this may lead to cost overruns because the actual project progress based on deliverables is not considered when reporting the status of the budget versus amount spent.
- **Scope and Schedule** – Although scope and schedule are related, they are not the same and should be separate criteria. Scope refers to work that must be completed, whereas schedule is the timeline to complete the work.
- **Program Health** – This rating is determined solely on the total number of traffic light indicator colours shown on the dashboard. This can be misleading, as it assumes that all risks are equally weighted.

Program Status Dashboard Does Not Present Current Project Status

Program status dashboard is not consistent and timely to reflect critical risks

According to management, the program status dashboard is presented to the Executive Steering Committee each quarter. However, the dashboards presented do not consistently align with the details included in the presentation deck and the upcoming risks. For example:

November 2022 program status dashboard was presented in December 2022 without highlighting critical risks

- The vendor advised the City in November 2022 that increased costs would impact its ability to complete the remaining phase one project deliverables. November 2022 program status dashboard did not identify this as a risk.
- The presentation of the November 2022 dashboard to the Executive Steering Committee in December 2022 did not highlight that the PF&R go-live, previously planned for November 2022, was delayed.
- In that presentation, the November 2022 dashboard showed all statuses as green/ “Good” despite the issues. Refer to Figure 2.

Figure 2: November 2022 Program Status Dashboard Presented in December 2022

Overall Status	Scope/Quality	Schedule	Budget	Benefits
Good	Good	Good	Good	Good

December 2022 program status dashboard was presented in April 2023

- In the April 2023 presentation to the Executive Steering Committee, the December 2022 program status was presented (Figure 3), instead of the current status.

Figure 3: December 2022 Program Status Presented in April 2023

Overall Status	Scope/Quality	Schedule	Budget	Benefits
Good	Good	Warning	Good	Good

Program Status Dashboard Is Not Accurate

Program overall status to be yellow according to TSD’s traffic light indicator criteria

The traffic light indicator for “Overall Status” on the May 2023 program status dashboard (Figure 4) was green despite two indicators being yellow. Two indicators were changed to yellow because of the ongoing vendor contract issue. According to TSD’s traffic light indicator criteria, if any two or more of the other indicators are yellow, the program’s overall status should be yellow. However, the dashboard presented to the Executive Steering Committee showed it as green.

Figure 4: May 2023 Program Status Dashboard Presented in June 2023

Overall Status	Scope/Quality	Schedule	Budget	Benefits
Good	Warning**	Warning**	Good	Good

“Total Progress” Only Measures Percentage of Budget Spent

EWMS implementation progress was not reflected in the status dashboard accurately

The “Total Progress” performance metric reports on the percentage of the total forecast budget spent. For example, in the May 2023 Program Status Dashboard, the progress was shown at 93 per cent (Table 7). This figure (93%) is calculated by dividing the actual spend (\$49.3 million) by the forecast (\$52.8 million). This is not a good indicator of financial health, because it does not consider project progress on deliverables, and therefore cannot identify potential cost overruns.

Table 7: Extract of EWMS May 2023 Program Status Dashboard

Total Amount (\$ million)			Progress
Actual Spend	Budget	Forecast	% Progress (As % of Total Forecast)
49.3	52.3	52.8	93

The implementation progress is lower than the percentage of money spent

During the audit, we noted that the implementation progress (deliverables) was significantly lower than the percentage of progress as indicated in May 2023 dashboard. Given several deliverables had not been completed the status should not have been reported as green/ “good”:

- TW and PF&R had respectively \$2.3 million and \$528,000 of contracted deliverables that were not completed, which were de-scoped from EWMS phase one and deferred to future phases.
- PF&R’s implementation was not completed as of May 2023.
- Both TS and SWMS were still in the project closure phase for more than one year since go-live.
- Common integration requirements in the Master Service Agreement dated May 8, 2017, had not been fully implemented for TW, PF&R, TS, and SWMS. \$104,212 worth of originally contracted deliverables were not completed in 2020, but de-scoped and deferred to future phases.

No definition was given for the criterion to measure benefits

Traffic light indicator criteria did not include any definitions to measure project benefits, however, benefits were presented to the Executive Steering Committee as green/ “good” (see **Figures 2, 3, and 4**).

2017 Cost Benefit Assessment Is Outdated

A one-time Cost Benefit Assessment was performed in 2017 which we found did not have supporting calculations. Due to the lack of supporting evidence, we could not verify these figures. During the audit, TSD was in the process of reviewing the benefits realization calculation method with each division and defining criteria to quantify and measure the benefits.

According to the 2017 Cost Benefit Assessment, the EWMS phase one investment was expected to provide an 11.8 per cent return on investment and a payback period of 8.5 years, based on a \$38.9 million forecasted investment. This means there would be lost benefits annually if EWMS was not fully implemented at the four divisions by 2020. Refer to **Table 8**.

Table 8: Annual Lost Benefits for the Four Divisions According to 2017 Cost Benefit Assessment

Division	Annual Lost Benefits Per Year
Toronto Water	\$1,930,000
Parks, Forest & Recreation	\$722,000
Transportation Services	\$1,592,000
Solid Waste Management Services	\$370,000
Total	\$4,614,000

Reperform the Cost Benefit Assessment considering the current budgeted costs and timelines

Six years have passed since the Cost Benefit Assessment was performed and given the change in the amount of investment that has occurred, the Cost Benefit Assessment should be reperfomed considering the current budgeted costs and timelines. The program management team should complete and update the Cost Benefit Assessment for each phase and when any significant changes in costs and timelines occur.

Recommendations:

3. **City Council request the Chief Technology Officer to review and improve the existing project status monitoring criteria and dashboards to include:**
 - a. **A methodology to accurately measure the implementation progress against budget spent and timelines**
 - b. **An update on the assessment of the benefits realization and potential losses that could incur as a result of increased expenditures and project delays**
 - c. **Potential short-term and long-term risks the project may face that would impact budget, timelines, and realizing intended benefits in a timely manner.**

4. City Council request the Chief Technology Officer to report to City Council on the status of the Enterprise Work Management Solution program by June 30, 2024:
 - a. Total expected cost of implementation
 - b. Status of benefits realized for divisions that have completed the implementation
 - c. Planned benefit realization for the entire Enterprise Work Management Solution program.

B.2. Improve Executive Steering Committee Governance

Executive Steering Committee held at irregular intervals

The role of the Executive Steering Committee is to provide strategic oversight, advice, and direction to the program management team, and to ensure deliverables are completed on time and intended benefits are realized.

While the Executive Steering Committee meetings were held quarterly since the EWMS project began in 2013, there were instances where meetings were held at longer, irregular intervals. We also noted that meeting minutes were not recorded from February 2020 to December 2022. Refer to **Table 9**.

Table 9: Executive Steering Committee Meetings Not Held Quarterly

#	Last Meeting	Next Meeting
1	Jul 18, 2016	Jan 27, 2017
2	Jan 27, 2017	Jun 13, 2017
3	Jun 25, 2018	Oct 31, 2018
4	Oct 31, 2018	Jul 31, 2019
5	Oct 24, 2019	Feb 25, 2020

Given that the EWMS program had significant delays, regular and potentially more frequent meetings, documentation of minutes, and rigorous monitoring of outcomes is warranted by the Executive Steering Committee.

Recommendations:

5. City Council request the Chief Technology Officer to develop criteria and requirements for Executive Steering Committee meetings based on project size and complexity, to ensure a consistent approach is followed.

- 6. City Council request the Chief Technology Officer to develop a consistent mechanism for documenting Executive Steering Committee meetings, key decisions and required actions in the meeting minutes.

C. Enhance Controls to Improve Project Execution

C.1. Improve Controls to Minimize Project Delays and Cost Overruns

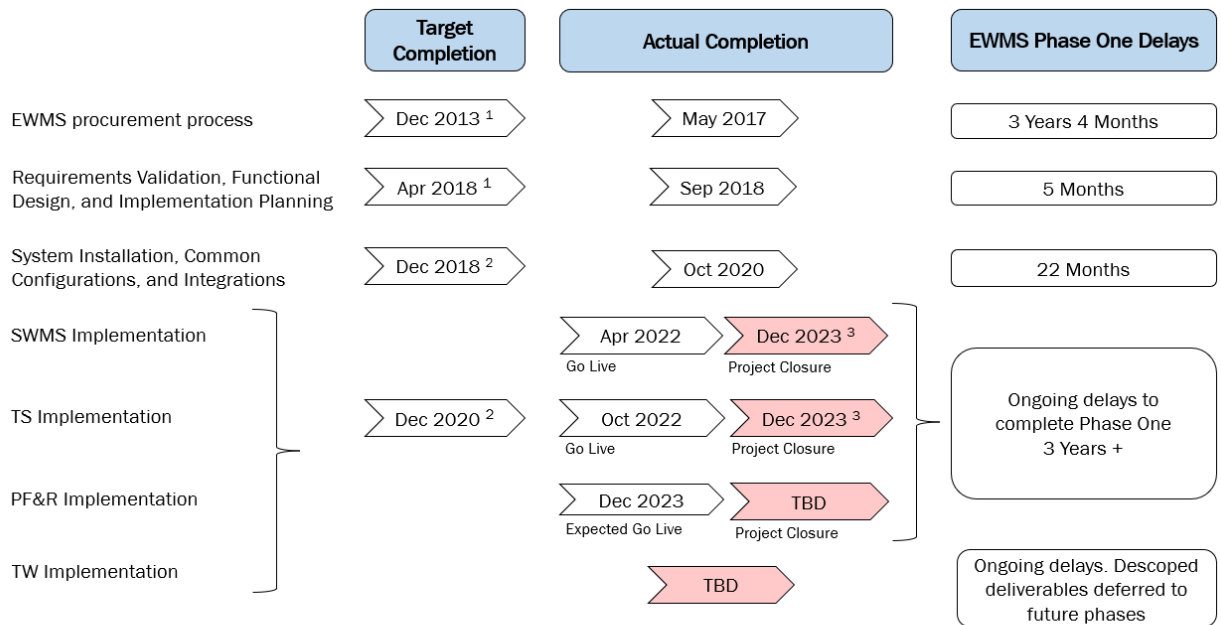
EWMS Delays

Two out of the four divisions have not yet implemented phase one of EWMS after more than 10 years

The EWMS program charter for the planning and design phase was signed off by stakeholders in May 2013. According to the 2017 Cost Benefit Assessment, the implementation of EWMS phase one was to be completed by 2020 at four divisions.

After more than 10 years since the program’s inception, PF&R’s implementation is still in progress and TW’s implementation has not yet started. Phase one has been implemented for SWMS and TS with project closure scheduled for completion by December 2023. **Figure 5** summarizes major delays during 2013 to 2023.

Figure 5: EWMS Phase One Delays



1 As per signed Program / Project Charter
 2 As per 2017 Cost Benefit Assessment
 3 EWMS Program Status Report, Executive Steering Committee, September 26, 2023

Key causes of delays to EWMS implementation during phase one

Over the past 10 years, several program directors and staff departed from the EWMS program team, leading to a significant loss of knowledge. In particular, the turnover rate for program directors has been high. According to management, from 2013 to 2020, more than 10 program directors left the program and some of the program documentation could not be found. Details of some documents that management was not able to provide are listed in **Section C.5**.

As shown in **Figure 5**, significant delays occurred in the requirements gathering, evaluation and negotiation phases of the procurement as well as common configurations and integrations work. Below are the notable events, causes, and key action dates representing phase one delays:

- **EWMS procurement process took three years and four months**
 - January 2014 – The first Request for Supplier Prequalification (RFSP) for a work management solution failed. A second RFSP was issued, and two solutions were prequalified.
 - June 2015 – A Request for Proposal (RFP) was issued for EWMS.
 - November 2016 – The evaluation and selection of a vendor was completed.
 - May 2017 – The vendor signed the Master Services Agreement.
- **Requirements Validation, Functional Design, and Implementation Planning**
 - The City requested the vendor to perform additional work on the project approach, requirements validation workshop, functional design workshop, and project plan. This impacted the project deliverables.
- **System Installation, Common Configurations, and Integrations**
 - The original schedule of work did not account for all the required tasks, and in certain situations the required resources from the project team were not available.
 - Common configurations and integrations were not completed until October 2020.
- **SWMS Implementation**
 - The delay in completing common configurations and integrations had a cascading effect on subsequent deliverables. For example, the statement of work for SWMS could not be signed until November 2020.

- **TS Implementation**
 - There were delays in the business requirements validation and implementing common configurations and integrations.
 - The statement of work was signed in October 2021.
 - Additional time was required by the division to refine business processes to reflect the new winter contract set up and its requirements.

- **PF&R Implementation**
 - The first target go-live date was on November 28, 2022.
 - Second April 2023 go-live target was not achieved.
 - Third scheduled go-live on November 13, 2023, was postponed. Per management, additional time was required to provide role-based training and prepare staff to use EWMS.
 - Fourth go-live is tentatively scheduled for December 2023 per management.
 - Issues related to overall readiness needed to be addressed before go-live.

Issues with EWMS vendor contract

Contract Issues with EWMS Vendor Will Further Delay Implementation at TW and PF&R

- November 2022 – The vendor advised the City that increased operating costs would impact its ability to complete the remaining phase one project deliverables under the originally contracted price.
- July 2023 – Approved change requests indicate that project deliverables for a total of \$2.9 million (TW and PF&R worth \$2.3 million and \$528,000, respectively, as well as \$104,212 of other integration work) will be descoped from phase one.
- These components will be deferred to phases two and three.

Impact of project delays

Project delays have resulted in lost benefits and inefficiencies. Additional risks include cost overruns and technology obsolescence. The complexity and delays of this program also led to the underutilization of licences, as discussed in **Section C.2**.

Improve Budget Controls to Avoid Project Cost Overrun

Descoped contracted work represents a major component of the phase one budget overrun

The phase one budget for the EWMS program reported to the Executive Steering Committee since July 2020 has been \$52.3 million (**Table 3**).

As of August 2023, the amount spent on the phase one implementation was \$51.8 million. However, a total of \$7.5 million of additional spending will be required to complete the original phase one scope of work, bringing the total to \$59.3 million.

- Approximately \$2.9 million of work has been deferred from the current vendor contract for phase one work to future phases. The City plans to award new vendor contracts for the EWMS implementation of phases two and three in 2024.
- \$4.6 million will be due upon completion of the existing work in progress under the current contract.

The current EWMS budget of \$52.3 million reported to the Executive Steering Committee will therefore be exceeded by \$7 million.

Management estimates that phases two and three of the EWMS program will cost \$33.1 million to complete. If this estimate is accurate, the total costs of the EWMS will be \$92.4 million. However, the final costs will not be known until the contract award for phases two and three is completed.

Project cost overruns can be avoided by preparing detailed plans, using tools to track progress, and creating detailed project schedules for work.

Recommendation:

- 7. City Council request the Chief Technology Officer to review and modify the existing Enterprise Work Management Solution's program governance structure to:**
 - a. Develop criteria and a process for escalation related for project delays to the Executive Steering Committee**
 - b. Establish a process to monitor and respond to emerging risks that may cause project delays, budget overruns, and impact on benefits realization.**

C.2. Improve Software License Management

Implementation Delays Resulted in Unused EWMS Software Subscriptions

Underutilization of software licensing cost **\$1.1M** and could increase further

TSD has been using a vendor’s proprietary software for the implementation of its EWMS since 2019. The software is used to manage the City’s enterprise-wide assets, work management and workflow processes at four divisions.

The City purchased various categories of licenses on different dates from March 2019 to August 2022. Due to the delay in the implementation of EWMS, several licenses could not be used as planned. Some of these licenses were later cancelled, while others are in the inventory awaiting to be allocated and used.

Details of unused licenses and costs incurred on the purchase and renewal are summarized in **Table 10**.

Table 10: Unused EWMS Vendor Licences and Costs Incurred

Licence Description/ Category	Number of Unused Licences	Cost of Underutilization (\$)	Comments
Cancelled Spatial and Express Licences	240	115,697	Incorrect category of licences purchased in August 2020 were never used and expired in December 2022. Costs incurred on these licences include the initial purchase cost plus the annual renewal costs.
Authorized, Limited and Spatial Asset User	1,581	520,809	Licences acquired on different dates from 2019 to 2022 remained unassigned as of May 2023. Management advised that they will be used in the future; therefore, the cost presented here only includes renewal costs.
Authorized, Limited and Spatial Asset User	294	447,999	Licences acquired on different dates from 2019 to 2022 were assigned to users. As of May 2023, these users have not logged in/used these licences. The costs include the initial purchase cost plus annual renewal costs.
Total:		1,084,505	

Currently, EWMS phase one has been implemented at SWMS and TS divisions. The cost of the unused licenses amounted to \$1,084,505 as of May 2023. This cost will continue to increase should these licenses continue to be unused.

Delay in PF&R Go-Live Date Resulted in Unused Licenses

A significant number of licenses (720) remain unused at PF&R

A significant number of licenses (720) remain unused due to PF&R's planned go-live date of November 28, 2022 changing three times, with the target currently being revised to December 2023. According to PF&R's November 25, 2022 divisional Steering Committee meeting, some reasons for the delayed go-live date were:

- delays in functional user acceptance testing (UAT)
- system defects/enhancements that needed to be addressed before UAT could start
- test scripts that had errors and were delivered late by the vendor
- additional time required for end-user training

It is important that management considers the change management process and implementation timelines before acquiring additional licenses, so that unnecessary costs are not incurred on unused license subscriptions.

Legacy Systems Present Additional Financial and Operational Risks

Four major legacy systems are still being used and will not be decommissioned until EWMS is fully implemented

Four major legacy systems are still being used and will not be decommissioned until EWMS is fully implemented. According to the draft phase two and three project charter, the target date for EWMS implementation is 2027. There is uncertainty over this date, as it is based on the draft project charter document that is still being developed.

Had EWMS been implemented in 2020, the City could have avoided the annual license subscription costs, maintenance costs, and staff resource costs for these legacy systems.

We estimate that a total of \$9.7 million will be spent on salaries, license subscriptions, and support costs for the legacy systems from 2021 to 2027, inclusive. Using the vendor's current contracted subscription fees, we estimate that the total software subscription costs for the EWMS from 2021 to 2027 will be \$4.4 million.

Cost of all support and license costs, legacy and new, will be \$14.1 million

If legacy licenses continue to be needed until 2027 in addition to EWMS licenses, and the City continues to maintain both legacy and EWMS systems, the total cost of all licenses and support costs to the City will be \$14.1 million.⁹ Refer to **Table 11**.

⁹ These estimates are a conservative estimate based on the assumption of no increases or decreases in existing licenses fees and is based on current subscription and support costs. Management advised that they do not anticipate the need to purchase additional licenses for EWMS phases two and three by leveraging an upcoming new licensing model.

The City also faces the risk of legacy systems becoming unstable once the vendor stops support for these systems. A loss of data or lack of availability may result in issues relating to regulatory compliance and operational disruptions.

Table 11: Cost of Running EWMS and Legacy Systems for 7 Years (2021–2027)

Support and License Costs (\$ million)		Cost of Operating Both Legacy and EWMS Systems in Parallel (\$ million)
Legacy Applications	EWMS Licenses	
9.7	4.4	14.1

A previous audit finding identified issues related to software license subscription tracking

We noted that a previous audit finding identified similar issues related to software license subscription tracking. The Auditor General in her report entitled "[City Needs to Improve Software License Subscription Tracking, Utilization and Compliance, June 23, 2021](#)," tabled at the July 7, 2021 Audit Committee meeting, recommended:

“City Council request the Chief Technology Officer to improve the existing software procurement process to ensure:

- a. Software subscriptions are thoroughly evaluated before purchasing,*
- b. All software subscriptions are deployed in a timely manner, so there are no excessive software subscriptions”*

The implementation of the above recommendation will strengthen controls on software license management. Therefore, we have not made an additional recommendation on software acquisition and license management related specifically to EWMS.

Recommendation:

- 8. City Council request Chief Technology Officer to expedite the implementation of the Enterprise Work Management Solution to:**
 - a. Utilize unused license subscriptions**
 - b. Evaluate current license subscriptions and discontinue those that are not required**
 - c. Develop a plan in coordination with Division Heads to discontinue legacy systems, in order to minimize risks of legacy applications becoming non-operational and save on renewal and maintenance costs and present the plan to the Executive Steering Committee.**

C.3. Full EWMS Functionality Was Not Operationalized at Transportation Services Division for Winter 2022–2023 Season

Objectives of EWMS Phase One for Transportation Services

In December 2021, City Council approved the awarding of contracts to suppliers to provide winter maintenance services for all city roads, sidewalks, and bike lanes from October 2022 to April 2029.

The objectives of EWMS were to:

- Allow staff to enter patrol logs using mobile tablets, which would increase efficiency.
- Track the time when a supplier is notified to perform an activity to determine if City service levels are being met for each of the contract areas.
- Track all incoming service requests and the resolution of each service request.
- Support invoice payment processing by having suppliers submit daily rate sheet information through EWMS.
- Process supplier payments more efficiently.
- Support data analysis and the monitoring of suppliers' compliance with their contractual requirements.

Although EWMS went live in October 2022, this was a time of significant change for the Division and not all system functions could not be fully operationalized

Although EWMS went live at TS in October 2022, all system functions could not be fully operationalized due to reasons such as:

- Contracts were only signed one month before go-live, which did not provide TS staff enough time to revise current business processes.
- Development of the role-based training curriculum tailored for each role and responsibility could not be completed. By the time role-based training material was completed at the end of October 2022, staff had been deployed to the field for the season and were not available to be trained.
- Contract details such as key performance indicators had not been updated into the system.
- Equipment lists to be used for winter maintenance service delivery, such as types of snowplows, were provided late, leading to delays in setting up equipment in EWMS to track and report costs.
- Supply chain issues (due in part to the COVID-19 pandemic) impacted the arrival time of vehicles and equipment required for the start of the winter season.
- The vendor's system application was not optimized for use on the division's mobile tablets.
- An employee change management survey found that 60 per cent of respondents were not ready to onboard the new system for the winter maintenance season starting on October 15, 2022.

Paper forms used for 2022–2023 winter maintenance season

For the 2022–2023 winter maintenance season, management established interim solutions for staff so they could process invoice payments using EWMS. This involved developing paper forms such as patrol logs, standby sheets, and supplier daily rate forms that had to be manually filled in. Completed forms were then scanned into a portable document format (PDF) and attached to each work order in EWMS. Supervisors also used spreadsheets to track and review maintenance activity in their districts.

System Readiness Update for 2023-2024 Winter Season

It is expected that core EWMS functions will be used in 2023–2024 winter season

We noted that role-based training has now been provided to all system users during August to September 2023, in time for the 2023–2024 winter maintenance season. Also, as business processes have since been finalized, management expects that the core EWMS functions will be used going forward and in the 2023–2024 winter season.

As part of the City’s IT sustainment program, the Division’s existing tablets are scheduled to be replaced in 2023–2024 by a larger notebook computer for all mobile users.

The new notebook computers should help address usability issues encountered by staff on current smaller-sized tablets that were not tested for usability during the 2022–2023 implementation. Management expects that by having electronic data, the division will be able to support more efficient analysis of contractor performance and faster processing of invoice payments.

Recommendation:

9. **City Council request the Chief Technology Officer to work with Divisions to establish a governance framework to ensure that:**
 - a. **Business processes are well defined in the planning phase before implementation**
 - b. **Role-based training is tailored for each business role before implementation**
 - c. **User acceptance testing includes end user devices for usability testing prior to implementation.**

C.4 EWMS Costs Underreported to the Executive Steering Committee and City Council

EWMS Program Budget and Actual Expenditure Were Underreported to City Council

Underreporting of total EWMS program costs to City Council

The budget and actual expenditures for the capital projects are reported to City Council for annual budget approval and in the Chief Financial Officer's (CFO) quarterly capital variance reporting. The purpose of these reports is to provide status of major capital projects, and to show the capital spending and the projected expenditures. We found that the figures provided for EWMS budget and expenditures in these reports to City Council were underreported.

The divisions that did not consolidate their costs with TSD's capital account, due to operational reasons, continue to report EWMS budget and expenses separately. As a result, the figures reported for the program under TSD do not provide the complete picture or a consolidated view of the program.

We further noted that certain historical divisional budgets and expenditures are excluded from TSD's reports to City Council even though they are for the EWMS program. Management advised these expenses will be included in the future reports to City Council.

The project dashboard prepared for the Executive Steering Committee does include all prior expenditures incurred. These differences need to be addressed. Key variations in reporting to City Council included:

- The 2023 budget plan¹⁰ and CFO's Capital Variance Report¹¹ presented the EWMS program budget for TSD at \$41.7 million, compared to the EWMS Steering Committee reported budget of \$52.3 million.
- Historical TSD costs, and the associated budget value of \$6.8 million were not included in both the budget plan and CFO's quarterly variance report.
- Spending of \$26.2 million from 2013 to 2020 incurred under divisional capital accounts was not included in TSD's Council reporting on the EWMS program status.

¹⁰ <https://www.toronto.ca/wp-content/uploads/2023/04/8e46-2023-Public-Book-TSD-V1.pdf> - Sum of phases two and three on page 24 (\$18.072 million) and phase one WBS01-02 budget on page 27 (\$23.622 million).

¹¹ [Appendix 5 2023 6M Capital Variance Dashboard by Program and Agency v2.xlsx \(toronto.ca\) - Presented on page 53](#)

There is a need to present a consolidated view of the budget and expenditures, so City Council is aware of the full program budget and costs. The budget and actual figures as presented to Council should align with the figures presented in the EWMS Executive Steering Committee dashboard.

According to the City's capital budget policy for major projects, the Division Head is required to prepare a stand-alone report to Council. The conditions include cost escalations of more than 10 percent, project delays greater than 12 months, and anticipated changes that may significantly impact the operation. These reports should present a consolidated view of the entire program including a cross divisional budget and expenditures, along with the TSD's budget and expenditure.

Underreporting Costs to the EWMS Executive Steering Committee

Original funding for EWMS drew on contributions from four divisions

The EWMS program has been jointly funded by TSD and four divisions - TW, TS, PF&R, and SWMS - since its launch in 2013. The divisions were responsible for preparing and managing their own budgets for the implementation of EWMS. In 2020, the City's Internal Audit Division reviewed the EWMS program and recommended to centralize oversight and consolidate the individual divisional project budgets into a single program budget.

Move towards single EWMS program budget in 2020/21

At its April 2020 meeting, the Executive Steering Committee decided to consolidate the individual budgets into a single EWMS program budget. Beginning in 2021, these individual budgets were consolidated into one capital account managed by TSD.

Certain divisions, due to regulatory or operational needs, continued to maintain their divisional project account related to staff salaries separately. These budgets and costs incurred are reported to City Council, however they also need to be included in the Executive Steering Committee dashboard's budget and actual spend values, to provide a complete picture of the EWMS program spending versus budget.

Recommendation:

- 10. City Council request the Chief Technology Officer in coordination with the Chief Financial Officer and Treasurer to review the existing reporting process to City Council for major technology project budgets and costs and implement:**
 - a. A process to ensure that consolidated budget and expenditures are reported to City Council for major cross divisional technology projects.**
 - b. A process to ensure that all expenditures from inception to date related to a major technology project are included in the Technology Service Division’s Budget Notes and Quarterly Capital Variance Reports.**

C.5. Ensure Key Documentation Is Maintained and Retained

Many staff have departed over the 10 years of the EWMS program, leading to a significant loss of knowledge

Many staff have departed over the 10 years of the EWMS program implementation, leading to a loss of knowledge. In particular, the turnover rate for the program directors has been high. Management noted that TSD has high turnover in general due to competitive industry pressure. This makes the knowledge transfer process more critical to minimize information gaps on key decisions and documents. For example, there was no supporting documentation for:

- the EWMS phase one budget of \$52.3 million presented since the July 2020 Executive Steering Committee meeting. TSD Management advised that this figure was carried forward from the previous project team.
- the 2017 Cost Benefit Assessment calculation. TSD Management advised: “There are some information gaps (i.e., detailed calculations of the benefit amounts, information sources and data parameters).”
- the causes of delays in the RFP process and EWMS work packages timeline
- the reasons for timelines not being included in some Project Charters
- the EWMS Steering Committee meeting minutes from February 2020 to December 2022

Importance of knowledge transfer to mitigate risk of losing key staff over time

A formal documentation plan can help to ensure the project team does not lose important information when a team member leaves. This lack of knowledge can hinder the project moving forward in a timely manner, and in meeting the initial goals and intended benefits of the program.

Recommendation:

11. City Council request the Chief Technology Officer to:

- a. Establish criteria as to what constitutes critical documents for a project
- b. Develop a process to ensure critical documents are maintained and retained throughout the project management lifecycle, with final versions stored in the program site according to the City's Record Retention policy.

D. Strengthen Project Risk Management and Controls

D.1. EWMS Faces Major Software Changes Prior to Completing Initial Development Milestones

EWMS software will be subject to two major technical enhancements

The EWMS software will be subject to two major technical enhancements in the form of 1) a software upgrade and 2) technical infrastructure change when moving from current on-premises (on-site) implementation to the Cloud¹²:

- The vendor will end support for the current version of EWMS at the end of September 2025. While the City can continue to use the legacy version, this will result in a service premium of approximately 35 per cent (a \$227,500 premium on \$680,000 in annual license renewals, estimated based on the existing number of licences and renewal costs) until the City upgrades its application version.
- EWMS is currently deployed using the City's on-site servers. EWMS has been under implementation since 2013.

Management has advised that the application will be moved to the Cloud in the next two to three years as part of the phase two and three workplan. The upcoming end of life date for the existing version of EWMS's software underscores the increased risk resulting from the prolonged length of time the EWMS program has remained in development while business requirements and technologies continued to evolve.

¹² "Cloud" refers to the use of a remote network of computer servers and IT resources provided by third-party service providers.

EWMS software will be undergoing a significant upgrade and technical transition to the Cloud

A software version upgrade and the Cloud transition together will bring risks to the ongoing implementation. A detailed risk assessment of the potential challenges that may be experienced during the upgrade and conversion process should be performed to ensure sufficient plans and contingencies are in place.

Recommendation:

- 12. City Council request the Chief Technology Officer to ensure that:**
 - a. Plans for the Enterprise Work Management Solution upgrade and Cloud migration are supported by a detailed risk assessment**
 - b. An action plan to address potential risks and delays is approved by all stakeholders.**

D.2. Auditor General’s Prior Audit Recommendations Need to Form Part of Technology Services Division’s Project Governance Framework

Incorporate prior audit recommendations to TSD’s project governance framework

The Auditor General has issued several reports on technology project management and software licence management and utilization. These reports, and several recommendations we identified from the reports, are listed in **Exhibit 1**. Some of the reports listed were issued to agencies and corporations; however, the recommendations made are relevant to the City divisions as well.

Although several of the recommendations have already been implemented by the respective division or agency, these recommendations need to be incorporated into TSD’s project governance framework and applied to all IT projects to ensure consistent application across the City.

Recommendation:

- 13. City Council request the Chief Technology Officer to develop a process to incorporate previous Auditor General audit report recommendations related to project management and governance of technology systems, and software license management, into the Technology Services Division’s project management framework.**

E. Relevance to Agencies and Corporations

Findings and recommendations may have relevance to agencies and corporations

Although agencies and corporations were not within the scope of our audit, this report contains a number of findings and recommendations that are also relevant to them to improve on project planning, governance and execution of future large information technology projects.

The Chief Technology Officer, through the City Manager, should share the report with all City agencies and corporations. Management staff in each of these organizations should review the issues and recommendations in this report, consider the relevance to their respective organizations, and implement policies, procedures and controls where needed.

Recommendation:

- 14. City Council request:**
 - a. The City Manager forward this report to the major agencies and corporations for review.**
 - b. The heads of agencies and corporations review the issues and recommendations included in this report and consider the relevance to their respective organizations for implementation.**

Conclusion

EWMS has many potential benefits for the City if managed well

The EWMS program represents a major opportunity to achieve streamlining, better coordination, and integration to break down silos between the City's major divisions. However, the program needs to be managed well to achieve these intended benefits.

Improvements are needed in project planning, governance, and execution

Our audit identified areas where improvements are needed in managing the project planning, governance, and execution. For example, careful planning, communication between stakeholders, and strengthened governance would help in reducing inefficiencies and realizing intended benefits in a timely manner.

EWMS Phase One spending exceeded the budget

We found that EWMS phase one's spending will exceed the budget, the project was not completed according to planned timelines, and several deliverables were deferred to future phases.

Phase one is not yet completed and phases two and three are outstanding

The implementation of EWMS phase one is not yet completed, with phases two and three outstanding, after 10 years since the start date. The integration of inter-divisional processes and systems was not fully completed, and additional efforts will be required to fully complete EWMS phase one's original scope to realize the intended benefits, as well as phases two and three.

EWMS has a critical role to play in improving the management and delivery of City services to residents. The sooner that EWMS is fully implemented, while ensuring strong project management controls and coordination/communication with stakeholders, the sooner the City and residents will be able to benefit from better coordination, more efficient service delivery, and improved service response times.

Audit Objectives, Scope and Methodology

Audit included in the 2023 Work Plan

The Auditor General's 2023 Work Plan¹³ included an audit of the implementation of the Enterprise Work Management Solution (EWMS).

Audit Objectives

The objectives of the EWMS audit were to assess:

1. How the EWMS program was planned and governed, including whether the program met its budget and timelines
2. Whether the program met its division's operational needs and the overall program objectives.

Scope

As part of our audit, we reviewed the overall EWMS project management and governance processes, common integration requirements, license and legacy system costs, implementation timeline, budget and actual spending which covered the period from January 1, 2013, to August 31, 2023, and training provided to City divisions.

The audit included EWMS phase one implementation, given that phases two and three are currently in the draft planning stage.

Due to inadequate documentation available in certain situations, we were unable to fully verify information such as supports relating to the 2017 Cost Benefits Assessment and the budget presented to the Executive Steering Committee. We have listed these in **Section C.5.** of this report and have discussed the details in other sections of the report. However, this did not impact our overall conclusions. We have made recommendations to address documentation issues that may have resulted from high staff turnover.

¹³ <https://www.toronto.ca/legdocs/mmis/2023/au/bgrd/backgroundfile-234051.pdf>

Methodology

The audit methodology included the following:

- obtaining an understanding of the EWMS program, in particular the implementation of EWMS phase one
- walkthroughs of the project management processes and documentation with divisional staff
- interviewing divisional staff from Technology Services, Toronto Water, Transportation Services, Parks, Forestry & Recreation, Solid Waste Management Services, Customer Experience - 311 Toronto, Pension, Payroll & Employee Benefits, Financial Planning, and Purchasing & Materials Management
- reviewing various supporting documents such as project management and governance processes, SAP reports from 2013 to 2023, project charters and statements of work, seven common integration requirements, deliverable acceptance sign-off, sampling of results of tests performed by divisions, unused licence reports, legacy system maintenance costs, the Executive Steering Committee dashboard, and steering committee meeting minutes
- inspecting training documentation and participant surveys
- observing EWMS in direct usage, on sampled end user devices including both City laptop and tablet devices

Compliance with generally accepted government auditing standards

We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

**Exhibit 1: Auditor General’s Previous Audit Reports, 2013–2022
Recommendations Related to Project Management, Governance and
Software License Management**

Seq. No.	Report Title and Year Issued	Recommendation Number(s)		Recommendations
		Project Management and Governance	Software License Management	
1	<p><u>City Needs to Improve Software License Subscription Tracking, Utilization and Compliance</u></p> <p>June 2021</p>	2		<p>2. Improve the existing software procurement process to ensure:</p> <ul style="list-style-type: none"> a. Software subscriptions are thoroughly evaluated before purchasing. b. All software subscriptions are deployed in a timely manner, so there are no excessive software subscriptions.
2	<p><u>Information Technology Projects Implementation: Information Privacy and Cybersecurity Review of Human Resource System</u></p> <p>February 2021</p>	3, 5, 6		<p>3. Enhance project governance by:</p> <ul style="list-style-type: none"> a. Ensuring all projects fully comply with the Project Review Team gating approvals. b. Ensuring project management gating criteria include a clear support transition plan when projects move from development to operations or from one stage to the next. c. Ensuring project managers are trained in change management methodology. <p>5. Enhance the project governance and project management framework by ensuring:</p> <ul style="list-style-type: none"> a. All stakeholders’ roles and responsibilities are clearly defined, and key stakeholders are involved from the project initiation stage. b. A clear support transition plan when project is moved from development to operations at Gate 4, the

Seq. No.	Report Title and Year Issued	Recommendation Number(s)		Recommendations
		Project Management and Governance	Software License Management	
				<p>last gate before the system is moved to operations.</p> <p>c. The City Clerk and the Chief Information Security Officer are part of the project steering committee for all key technology initiatives and transformations that involve privacy and security risks.</p> <p>d. Criteria are developed to determine projects with high risks that have not been mitigated prior to moving to production be escalated to the Senior Leadership Team (SLT). The developed criteria should be shared with the City Manager for city-wide implementation.</p> <p>6. Enhance project management framework by including a review of internal controls for systems that involve financial transactions.</p>
3	<p><u>Information Technology Infrastructure and Asset Management Review: Phase 2: Establishing Processes for Improved Due Diligence, Monitoring and Reporting for Effective IT Projects and Asset Management</u></p> <p>June 2018</p>	2(c), 3		<p>2.</p> <p>c. Develop a process for performing a periodic review with City divisions that have IT assets which are not deployed or assigned to users to address any excess inventory.</p> <p>3. Develop a reporting mechanism and criteria for reporting to the Executive Committee and respective Executive Project Sponsors on project implementation delays and unused software licences. Include as a minimum:</p> <p>a. Accumulated financial impact of delays.</p>

Seq. No.	Report Title and Year Issued	Recommendation Number(s)		Recommendations
		Project Management and Governance	Software License Management	
				<ul style="list-style-type: none"> b. Unused assets, licences and solutions. c. Forgone benefits as a result of project implementation delays. d. Plans in place to mitigate impact of delays.
4	<u>Software Licenses – Managing the Asset and Related Risks</u> February 2015	1, 2, 3, 4, 5, 6	7, 9, 10, 11	<ol style="list-style-type: none"> 1. Ensure there is a software owner identified for all software assets and that activities to ensure compliance with software licensing agreements are performed in accordance with the divisional policy. 2. Ensure there is adequate coordination between asset purchases and anticipated changes in corporate information technology configurations. 3. Ensure key contract terms and conditions are summarized and used to facilitate effective contract management. 4. Take appropriate action to ensure there is no significant further delay in the implementation of all relevant modules of the information technology asset management system. 5. Ensure that divisional staff responsible for recording purchases in the financial information system are adequately trained on the appropriate account codes to be used. 6. Develop a formal procedure for the coordination of acquisition

Seq. No.	Report Title and Year Issued	Recommendation Number(s)		Recommendations
		Project Management and Governance	Software License Management	
				<p>of information technology with the City's agencies and corporations.</p> <p>7. Direct City divisions to facilitate, to the maximum extent possible, the automated collection and monitoring of software license related information.</p> <p>9. Proceed with the software reconciliation process for those software titles where the software owner has been identified.</p> <p>10. Ensure software owners perform annual software reconciliations and report the results to the Information and Technology Division.</p> <p>11. Ensure that the inventory of software is completed as soon as possible and that software usage reports be developed and distributed to software owners for their review. Software owners should report back on license usage to the Chief Information Officer so that proper decisions can be made in relation to City software assets.</p>
5	<u>Financial Planning Analysis and Reporting System (FPARS):</u> <u>A Large-Scale Business Transformation/</u>	1, 3, 4, 5, 6, 7, 8, 9		<p>1. Prior to the development of large-scale information technology projects, a detailed review of all Auditor General's recommendations be conducted. Specific checklists be developed and signed off by senior staff attesting to the fact that all Auditor General's</p>

Seq. No.	Report Title and Year Issued	Recommendation Number(s)		Recommendations
		Project Management and Governance	Software License Management	
	<u>Information Technology Project</u> May 2013			<p>recommendations have been considered.</p> <ol style="list-style-type: none"> 3. Prepare a detailed and comprehensive analysis of [the system] related costs to date as well as those costs projected to the completion of the project. Include all anticipated ongoing maintenance costs. Quantify and document all anticipated financial and operational benefits of the project. 4. Report in detail to Council on the estimated costs to implement the capital budget component of the system. 5. Review and approve detailed cost estimates for large scale information technology projects for accuracy and reasonableness prior to submission to the Budget Committee and Council. Such a review includes a financial analysis to identify, quantify and document anticipated financial and operational benefits for implementation. Further, the review should be clearly documented and approved. 6. Ensure that existing or prospective “off-the- shelf” software applications are thoroughly researched and investigated prior to developing a custom solution for future large scale information technology projects. 7. Ensure that upon project completion, a final “close-out” report is submitted to City

Seq. No.	Report Title and Year Issued	Recommendation Number(s)		Recommendations
		Project Management and Governance	Software License Management	
				<p>Council. Such reports should include comparisons of budget to actual timelines, costs, actual benefits achieved and where applicable, a description of anticipated benefits not realized.</p> <p>8. Establish minimum documentation standards required in support of information technology projects. Standards should include one documentation repository in projects where various project leads exist. In addition, a formal process for collecting, addressing and reporting project risks and a formalized business change request process should be in place.</p> <p>9. Ensure documentation is maintained for issues and recommendations made by external consultants. Supporting documentation should include action taken on issues identified and related recommendations.</p>
6	<p><u>eCity Initiative – Improvements Needed in Governance, Management and Accountability</u></p> <p>October 2012</p>	1, 4, 5, 6, 7		<p>1. Ensure that the IT governance framework is aligned with the strategic goals and objectives.</p> <p>4. Develop an accountability framework to manage implementation of the strategic plan.</p> <p>5. Report back to City Manager on the achievement of significant milestones and project delays.</p> <p>6. Develop performance measures that are relevant, reliable and measurable.</p>

Seq. No.	Report Title and Year Issued	Recommendation Number(s)		Recommendations
		Project Management and Governance	Software License Management	
				7. Develop an accountability framework to manage implementation of the strategy to ensure a successful outcome and maximize the value for money from the [vendor] contract.

Appendix 1: Management’s Response to the Auditor General’s Report Entitled: “Audit of the Enterprise Work Management Solution (EWMS): Lessons Learned for Future Large Information Technology Projects”

Recommendation 1: City Council request the Chief Technology Officer to ensure:

- a. All technology projects have an overall program-level charter developed that clearly defines the program implementation budget, timeline, and performance measurement, and is approved by all stakeholders
- b. An overall program-level charter for the remaining phases of the Enterprise Work Management Solution that clearly defines the program implementation budget, timeline, and performance measurement, and is approved by all stakeholders
- c. A performance measurement framework is established to measure the achievement of technology project goals on a regular basis until the project is completed.

<p>Management Response: <input checked="" type="checkbox"/> Agree <input type="checkbox"/> Disagree</p>
<p>Comments/Action Plan/Time Frame:</p> <p>Management agrees with the recommendation.</p> <p>The EWMS Program is being delivered in partnership with Technology Services Division (TSD), Transportation Services (TS), Parks, Forestry, and Recreation (PFR), Solid Waste Management Services (SW), and Toronto Water (TW) divisions along with support from other shared services divisions. TSD has program management responsibility and shares overall program delivery and accountability with TS, PFR, SW, and TW divisions. The EWMS Program is a large, complex transformational change driven by operational business and service delivery needs.</p> <p>Management has implemented and applied the following changes:</p> <p>A – Since 2021, Technology Services Division (TSD) has developed and implemented an improved project management framework including gating approvals and templates to govern all TSD managed projects. In April 2023 the Project Review Committee (PRC) was established as the governance body for project gating approvals. The existing Project Charter template has been updated and will be implemented in Q1 2024</p> <p>Timeline for implementation – March 31, 2024</p> <p>B – Prior to 2020, the EWMS Program consisted of separate and distinct projects budgeted individually by the respective divisions. Divisional project charters for Phase were developed, however, some Phase 1 project charter documents were not approved. Quarterly status updates were provided to the Executive Steering Committee including scope, schedule, budget and risk details for each of the individual projects and other items within the Phase 1 charter documents, A project implementation Roadmap, and Steering Committee Decision/Action Log is also included in the Steering Committee updates to clarify the current program schedule and steering committee directed decisions and actions.</p>

The EWMS Phase 2 and Phase 3 projects are in the definition and planning stage. Individual divisional project charters and an overall Phase 2 and Phase 3 program charter has been drafted and provided during the field audit work. The charter documents will be completed and signed off as part of the definition and planning for Phase 2 and Phase 3 that will be completed in 2024.

Timeline for implementation – Q4 2024

C – An initial cost benefit assessment and performance measurement framework for the EWMS program was developed in 2017, ahead of contracting with the Phase 1 system implementation vendor. The cost benefit assessment and performance measurement framework will be used to measure the realization of program benefits and objectives at the end of each Phase. The cost benefit assessment is in preparation for formal measurement following the completion of Phase 1. An updated cost benefit assessment and performance measurement framework has been provided for two divisions during the field audit work.

The updated Project Charter, specifically section #2 - Project Benefits and #3 - Goals, Objectives and Performance Measures will be used to create the framework in which projects can/will track performance measurement towards the achievement of the project and beyond for benefits realization. The Project Review Committee also assesses project progress via monthly project status reporting with plans to expand in 2024 to performance measurement/benefits tracking. A performance measurement framework will be established to measure the achievement of technology project goals on a regular basis until the project is completed by Q4, 2024.

Timeline for implementation – December 31, 2024

Recommendation 2: City Council request the Chief Technology Officer to leverage the Technology Services Division’s Stakeholder Management Plan to improve stakeholder engagement, coordination, and communication for the remaining phases of implementing the Enterprise Work Management Solution.

Management Response: Agree Disagree

Comments/Action Plan/Time Frame:

Management agrees with the recommendation.

Program level organizational change management resources were added to the program team in 2020. These resources have conducted stakeholder analysis of the transformational change represented by the EWMS program and increased the level of preparedness ahead of the implementations. This includes work to understand how other processes and systems outside of the EWMS implementation are changing and the impacts of these changes. As one example, the 311 integration is a foundational and integration design work proceeded based on the legacy case management system until there was certainty regarding the timeline for the new CRM system. Understanding the old and new system worked from an overall organizational perspective resulted in the integration design work for the legacy system being heavily leveraged

to allow the integration with the new CRM system to be ready in time for the Transportation and PFR – Forestry implementations.

The Stakeholder Management Plan is part of the formal project management framework developed by Technology Services Division. The Stakeholder Management Plan will be completed during the planning phase for EWMS Phase 2 and Phase 3 during 2024.

Timeline for implementation – December 31, 2024

Recommendation 3: City Council request the Chief Technology Officer to review and improve the existing project status monitoring criteria and dashboards to include:

- a. A methodology to accurately measure the implementation progress against budget spent and timelines
- b. An update on the assessment of the benefits realization and potential losses that could incur as a result of increased expenditures and project delays
- c. Potential short-term and long-term risks the project may face that would impact budget, timelines, and realizing intended benefits in a timely manner.

Management Response: Agree Disagree

Comments/Action Plan/Time Frame:

Management agrees with the recommendation.

A – As of 2020, a summary level dashboard is included in the quarterly program status package provided to the Executive Steering Committee for the EWMS program. The program status package also includes scope, schedule and risk details for each of the individual projects and the dashboard is used to track and monitor overall program progress and draw attention to areas that require decisions to be made by the Executive Steering Committee.

Standardized monthly status reporting is a requirement for all active projects across TSD 2021. The project status report dashboard is reviewed monthly by the Project Review Committee. The methodology to accurately measure the implementation of progress against budget spent and timelines is currently being updated and will be implemented by Q1 2024.

Timeline for implementation – March 31, 2024

B – An initial Cost Benefit Assessment for EWMS was completed in 2017. This assessment was based on the assumption EWMS would be fully implemented for the four divisions by 2020. This would have required all phases of the system be fully implemented within three years of awarding the contract and executing the agreement with the system vendor. However, once the vendor was contracted the City and vendor teams conducted a planning exercise to establish a Roadmap and timeline for the rollout of Phase 1. The Roadmap and timeline are included in the updates to the Executive Steering Committee to provide clarity regarding the implementation

schedule. The 2017 cost benefit assessment is being updated to allow for formal measurement of the benefits from the Phase1 rollouts. Thus far the benefit assessment and measurement exercise has noted improvements in:

- scheduling and planning and reduction in backlog of safety work orders as benefits for SW;
- the accuracy of data entry, reduction in coordination time, and reduced time to process claims for TS.

The benefit assessment work continues and will be updated accordingly.

Timeline for implementation – December 31, 2024

C – As of 2020 Risks, Actions, Issues, Decision (RAID) log has been established for the EWMS Program. The RAID log was furthered streamlined and consolidated in July 2023. The RAID log includes a criteria for any risks, issues, actions, issues, or decisions that impact the program scope, schedule, budget or benefits/objectives. Items impacting the entire program are presented to the Executive Steering Committee that provides oversight of the entire program. Items that impact the divisional projects are presented to the individual divisional Steering Committees that provide oversight for the individual divisional projects. These items are also captured in the RAID log.

The Risk Management Plan is part of the formal project management framework developed by Technology Services Division. Project risk tracking (short, medium and long-term) exists as monthly status report in project reporting tool since 2021. Further enhancement to risk management plan and tracking will be implemented by Q2 2024.

Timeline for implementation – June 30, 2024

Recommendation 4: City Council request the Chief Technology Officer to report to City Council on the status of the Enterprise Work Management Solution program by June 30, 2024:

- a. Total expected cost of implementation
- b. Status of benefits realized for divisions that have completed the implementation
- c. Planned benefit realization for the entire Enterprise Work Management Solution program.

Management Response: Agree Disagree

Comments/Action Plan/Time Frame:

Management agrees with the recommendation.

TSD will provide a status update on Enterprise Work Management Solution program to General Government Committee/ Audit Committee by Q2 2024.

Timeline for implementation – June 30, 2024

Recommendation 5: City Council request the Chief Technology Officer to develop criteria and requirements for Executive Steering Committee meetings based on project size and complexity, to ensure a consistent approach is followed.

Management Response: Agree Disagree

Comments/Action Plan/Time Frame:

Management agrees with the recommendation.

As of 2021, The Technology Services Division (TSD) has developed and implemented an improved project management framework including gating approvals and templates to govern all TSD managed projects. The required project documentation is specified based on the size and complexity of the project. In addition, the Steering Committee status update template (inclusive of the dashboard) has also been updated. TSD will enhance the implementation of consistent approach by Q1 2024.

Timeline for implementation – March 31, 2024

Recommendation 6: City Council request the Chief Technology Officer to develop a consistent mechanism for documenting Executive Steering Committee meetings, key decisions and required actions in the meeting minutes.

Management Response: Agree Disagree

Comments/Action Plan/Time Frame:

Management agrees with the recommendation.

Quarterly Steering Committee meetings and status updates have been provided to the EWMS Executive Steering Committee, since 2020. The program status package includes scope, schedule and risk details for each of the individual projects and the dashboard is used to track and monitor overall program progress. Executive Steering Committee decisions and direction are documented in the supporting Decision/Action Log. The decisions and actions have also been captured in the meeting minutes since Q1 2023, in addition to the individual Decision/Action Log.

Timeline for implementation – December 31, 2023

Recommendation 7: City Council request the Chief Technology Officer to review and modify the existing Enterprise Work Management Solution’s program governance structure to:

- a. **Develop criteria and a process for escalation related for project delays to the Executive Steering Committee**
- b. **Establish a process to monitor and respond to emerging risks that may cause project delays, budget overruns, and impact on benefits realization.**

Management Response: <input checked="" type="checkbox"/> Agree <input type="checkbox"/> Disagree
Comments/Action Plan/Time Frame: Management agrees with the recommendation. A and B - Since 2018, The EWMS Program Executive Steering Committee is chaired by the Deputy City Manager and includes the Chief Technology Officer, and the General Managers for Transportation Services, Toronto Water, Solid Waste Management Services, Parks, Forestry and Recreation, and the Executive Director Customer Experience. The Executive Steering Committee will be expanded to include the Chief Finance officer and Chief Purchasing Officer. The detailed status of individual projects (scope, schedule, budget and risks) has been provided in the quarterly updates to the Executive Steering Committee. The template for project Steering Committees has been updated to standardize the reporting at the steering committee meetings. A consolidated Risks, Actions, Issues, Decision (RAID) log has been established for the EWMS Program. Items impacting the entire program are presented to the Executive Steering Committee that provides oversight of the entire program. This includes working with Toronto Water to monitor, escalate, and address the regulatory risks associated with any delays to the implementation activities required to replace the existing work management system for the City’s water and wastewater plants. The current system plays an important role in demonstrating compliance with legislation, and will no longer be supported by the vendor after 2026. Timeline for implementation – December 31, 2023

Recommendation 8: City Council request Chief Technology Officer to expedite the implementation of the Enterprise Work Management Solution to:

- a. **Utilize unused license subscriptions**
- b. **Evaluate current license subscriptions and discontinue those that are not required**
- c. **Develop a plan in coordination with Division Heads to discontinue legacy systems, in order to minimize risks of legacy applications becoming non-operational and save on renewal and maintenance costs and present the plan to the Executive Steering Committee.**

Management Response: Agree Disagree

Comments/Action Plan/Time Frame:

A & B – Prior to 2023, the decision to purchase additional Maximo licences involved a six- month lead time for procurement. The six-month procurement lead time has resulted some licences not being used when the launch for PFR – was delayed in 2022 and is now scheduled for December 2023. The delayed launch was required to provide for additional time for further changes to the system, addressing system defects; and delivering enhanced training for end users in response to surveys conducted with the business.

Staff have refined the procurement process and reduced the procurement lead time to 3 months. As of December 2023 the Enterprise Work Management Solution will be implemented for 75% of the Phase 1 divisions, which will utilize 76% of the current unused licenses. Strategic sourcing work is underway to establish a vendor contract for the implementation of the remaining Program scope. This will utilize 24% of the unused licences. The Staff have also negotiated a new EWMS system licencing model that will provide greater licence compliance measurement and flexibility to adjust licence assignment and use based on actual demand. The new model will be in place as of 2025.

Timeline for implementation – March 31, 2024

C - The decommissioning of legacy systems will be planned and completed as part of the Roadmap for EWMS Phase 2 and Phase 3. This work is currently in the definition and planning phase and will be presented to the Executive Steering Committee once completed.

Timeline for implementation – December 31, 2024

Recommendation 9: City Council request the Chief Technology Officer to work with Divisions to establish a governance framework to ensure that:

- a. Business processes are well defined in the planning phase before implementation
- b. Role-based training is tailored for each business role before implementation
- c. User acceptance testing includes end user devices for usability testing prior to implementation.

Management Response: Agree Disagree

Comments/Action Plan/Time Frame:

Management agrees with the recommendation.

A - The TSD project management framework requires all active projects to have completed an Organizational Change Management Plan as part of the Planning Phase of their project that clearly articulates the business processes and any changes planned for them. This is signed off by the Sponsor and project team and approved by the Project Review Committee to pass through

Gate 2 prior to implementation.

The EWMS Phase 2 and Phase scope is in the planning stage. A Business Process and Business Requirements Guide has been developed to capture and detail business objectives and benefits, business process and business requirements for the phase two and phase three implementation.

Timeline for implementation – Completed

B - The TSD project management framework requires all active projects to have completed an Organizational Change Management Plan as part of the Planning Phase of their project that clearly articulates a Training Plan, including training needs assessment and skill development by role, training delivery plan and training assessment plan. It is a requirement that this be signed off by the Sponsor, project team and approved by the Project Review Committee to pass through Gate 2 prior to implementation.

Role based training was provided to TS staff in August 2023, once the business processes were updated to reflect the new winter services contract. The training delivered for the PFR – Forestry launch was structured to be specific to the actual system roles performed by the end users. This delivery method will be further enhanced by the use of the Business Process and Business Requirements Guide to define business processes during the planning stage for phase two and phase three.

Timeline for implementation – December 31, 2023

C - The Master Test Plan document is required to be completed as part of the TSD project management framework. The Master Test Plan includes a section devoted to the User Acceptance Testing requirements and is approved by the Sponsor and the Project Review Committee to pass through Gate 2, prior to implementation. The Master Test Plan document is currently undergoing updates by the Quality Assurance team. Explicit instructions to outline that end user devices will be tested for usability prior to implementation will be included in the updated Master Test Plan document.

The testing delivered for the TS launch did not include end user devices. TS did not intend on using the mobile devices immediately after system implementation in October 2022. TS optimized the screens for the mobile devices in 2023 and the devices are being used for the 2023/2024 winter operations. The testing for the PFR – Forestry launch included user acceptance testing with end user devices to support the December 2023 system launch.

Timeline for implementation – December 31, 2023

Recommendation 10: City Council request the Chief Technology Officer in coordination with the Chief Financial Officer and Treasurer to review the existing reporting process to City Council for major technology project budgets and costs and implement:

- a. A process to ensure that consolidated budget and expenditures are reported to City Council for major cross divisional technology projects

- b. A process to ensure that all expenditures from inception to date related to a major technology project are included in the Technology Service Division’s Budget Notes and Quarterly Capital Variance Reports.

Management Response: <input checked="" type="checkbox"/> Agree <input type="checkbox"/> Disagree
Comments/Action Plan/Time Frame: Management agrees with the recommendation. A – Through the utilization of SAP historical reporting and divisional staff TSD has implemented a process to capture relevant budget and expenditure data as of December 31, 2023, TSD will ensure consolidated budget and expenditure reports are submitted to Financial Planning for City Council. These reports will contain TSD managed financials. Financial Planning will assist with visibility to expenditures in the Divisions to provide a consolidated view. Timeline for implementation – December 31, 2023 B – As of December 31, 2023, Through the utilization of SAP historical reporting, the database of previous variance reports and divisional staff, TSD has implemented a process to ensure all project budget expenditures from the inception are captured in quarterly reports. This includes all past and current project phases FPD is supportive of better budget oversight and quality of financial mgmt./reporting for any major technology projects through the existing major capital reporting process. From compliance perspective, FPD will ensure that the annual budget Notes and quarterly capital variance submissions prepared by TSD are reflective of the recommended best practice. Timeline for implementation – December 31, 2023

Recommendation 11: City Council request the Chief Technology Officer to:

- a. Establish criteria as to what constitutes critical documents for a project
- b. Develop a process to ensure critical documents are maintained and retained throughout the project management lifecycle, with final versions stored in the program site according to the City’s Record Retention policy.

Management Response: <input checked="" type="checkbox"/> Agree <input type="checkbox"/> Disagree
Comments/Action Plan/Time Frame: Management agrees with the recommendation. A – Technology Services Division (TSD) has developed and implemented a formal project management framework including gating approval documents and templates to govern all TSD

managed projects as of 2021. Critical projects and project documentation are reviewed at the end of the distinct project management gates/phases. Critical project documents are defined as:

- Project Charter
- Readiness Assessment
- Business Requirements
- EARB Review Minutes
- Master Test Plan
- Organizational Change Management Plan
- Project (Management) Plan
- Project Risk Management Plan
- Stakeholder Management Plan
- Support Transition Plan
- Test Completion Report
- Cyber Risk Assessment
- Lessons Learned Report
- Project Closure Report

Timeline for implementation – Completed

B – As of 2021, Technology tools are implemented for project documentation throughout the project management lifecycle, and consistent with the City’s Record Retention Policy. A shared digital location is established for storing project related documents with consistent structure for all projects Additional controls will be implemented to ensure the documents are being stored consistent with the City’s Record Retention policy.

Timeline for implementation – June 30, 2024

Recommendation 12: City Council request the Chief Technology Officer to ensure that:

- a. Plans for the Enterprise Work Management Solution upgrade and cloud migration are supported by a detailed risk assessment
- b. An action plan to address potential risks and delays is approved by all stakeholders.

Management Response: Agree Disagree

Comments/Action Plan/Time Frame:

Management agrees with the recommendation.

Major system upgrades every 3-5 years are an expected part of ongoing software management. Most, if not all, software solutions have transitioned or have short to mid term plans to transition to Cloud.

While the EWMS technology move to Cloud is a change to the original Project Charter, it is considered to be a natural evolution of the system with benefits such as scalability, resiliency, and continuous feature enhancements.

The detailed technical scope and workplan for the EWMS software upgrade and cloud adoption will include detailed technical, business, financial and risk assessment and risk mitigation has commenced as part of the Phase 2 and Phase 3 definition and planning activities.

Timeline for implementation – December 31, 2024

Recommendation 13: City Council request the Chief Technology Officer to develop a process to incorporate previous Auditor General audit report recommendations related to project management and governance of technology systems, and software license management, into the Technology Services Division’s project management framework.

Management Response: Agree Disagree

Comments/Action Plan/Time Frame:

Management agrees with the recommendation.

TSD works closely with Auditor General’s office to manage the audit report recommendations. AGO’s audit tracking system along with TSD’s collaboration system are used to monitor and track audit recommendations. Regular updates on audit recommendations are provided to TSD’s senior management team for guidance and direction on closure of the recommendations. As of November 2023, 20 out of 29 previous audit report recommendations (refer to exhibit 1) have been closed and 1 is completed and ready to be reviewed by the Auditor General’s Office.

Auditor General recommendations related to project management and governance of technology systems are incorporated into the Technology Services Division’s project management framework except software license management. The framework will be enhanced to include software license management.

TSD will enhance the process to track audit recommendations to ensure previous audit recommendations are part of the ongoing process improvements done for project management framework.

Timeline for implementation – December 31, 2024

Recommendation 14: City Council request:

- a. The City Manager forward this report to the major agencies and corporations for review.
- b. The heads of agencies and corporations review the issues and recommendations included in this report and consider the relevance to their respective organizations for implementation.

Management Response: <input checked="" type="checkbox"/> Agree <input type="checkbox"/> Disagree
Comments/Action Plan/Time Frame: The City Manager will forward the report to the identified agencies and corporations for review by Q2, 2024. Timeline for implementation – June 30, 2024

**AUDITOR
GENERAL**

TORONTO

