



INTERNAL AUDIT REPORT

Construction Audit of Carrville Community Centre, Library and District Park: Phase 1

August 2022

CONSTRUCTION AUDIT OF CARRVILLE COMMUNITY CENTRE, LIBRARY AND DISTRICT PARK: PHASE 1

CONCLUSION AND SUMMARY

On June 6, 2018, Internal Audit presented Phase 1 of the Construction Audit of Fire Station 7-4 to the Finance, Administration and Audit Committee. The audit reviewed the planning and design, and bid and procurement phases of the construction. It identified numerous issues which caused a delayed opening of the Fire Station 7-4 and increased costs to the City. Based on the results of that audit, it was decided that another construction audit would be undertaken. The primary objective would be to determine whether management has been able to apply the action plans efficiently and effectively in subsequent construction projects.

The planning and design, bid and procurement phase for the construction of the Carrville Community Centre, Library and District Park are now complete. We conclude that management has made operational improvements in this phase of the construction. However, some of the same common themes and concerns were identified again during this audit.

The following organization wide improvements are required to improve capital project delivery:

- Formally re-evaluate Business Cases and/or Project Charters in advance of making project budget increase requests to Council.
- Ensure that liquidated damages provisions are included in all construction contracts, and only excluded on an exception basis when assessed against qualitative and quantitative factors.
- Ensure Fairness Monitors are engaged for all appropriate procurements.
- Ensure the formation and composition of proposal evaluation committees is appropriate
- Document vendor pre-qualification criteria assessed.
- Enhance the Design and Construction Standards Document.
- Continue to enhance Project Management Methodologies, Policies and Procedures.

Much like the construction of Fire Station 7-4, the construction of the Carrville Community Centre, Library and District Park has experienced significant budget increases, largely attributed to the COVID-19 pandemic. However, many of the same issues were identified again in this audit. This includes how best to evaluate new information that would adversely impact the ability of delivering the scope of the project within the approved budget. An evaluation of the Construction Project Charter and Business Case should be performed when there is a material change to the scope, cost, quality, and/or schedule, and should include a reevaluation of the projects intended outcomes, identifying risks and an assessment of alternatives. However, no formal update of the Project Charter and/or Business Case was performed in advance of the management recommendation to Council to approve a \$26,000,000 budget increase to award the general contractor tender. The budget increase was approved on February 15, 2022. The City does not have endless resources. It is imperative that as part of good governance, openness and

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transparency, management should keep both Council and the general public apprised of market conditions impacting projects in a timely manner. Specifically, with the price volatility experienced across the construction industry, it would have been prudent for management to notify Council of the trend in advance of the general contractor bid closing date, and to develop alternative courses of action for Council consideration as related to the Carrville project. These options should be accompanied by updates to the Business Case and Project Charter, clearly articulating opportunities and risks to the City regarding any proposed changes to project scope, cost, quality or schedule.

Labour and material shortages, supply chain breakdowns, and risk-based pricing have led to significant unprecedented cost increases across the construction industry and are anticipated to continue into the foreseeable future. Although management agreed to include liquidated damages provisions moving forward as a result of the Fire Station 7-4 construction audit, the clause was not used in this contract. Legal Services was not consulted on the appropriateness of removing the liquidated damages provision from this tender contract and specific criteria which management should consider in the event a liquidated damages provision should be waived has not been documented. The absence of a liquidated damages provision may potentially limit the City's leverage with this vendor and the City's ability to serve the community as initially intended. Deciding on damages at the outset of a project gives both parties the opportunity to settle on an amount that they think is fair, rather than leaving this decision to the courts in the event that the City needed to take legal action.

Though a Fairness Monitor process exists, it did not operate as intended. A Fairness Monitor was not considered nor engaged as part of the architect selection process. In addition, Procurement Services did not act in a consulting or oversight capacity to ensure this was an appropriate decision. Not engaging a Fairness Monitor for large procurements may put the City at significant risk. For example, unsuccessful proponents may claim unethical or unfair selection practices, which can lead to legal action and reputational damage. It is imperative that additional guidance be provided to clarify gaps in the Fairness Monitor consideration and engagement process.

The Ontario General Contractors Association (OGCA) recommends that the selection of any evaluation committee should be carefully considered and include members who have the necessary experience and technical information to appropriately evaluate the proponent's submission. Although criteria exist to aid in the selection of evaluation committee members, it does not require that the majority of evaluators be technical subject matter experts. Ensuring that the majority of the evaluation committee is made up of subject matter experts with a deep understanding of the specific work to be performed mitigates the risk of unqualified vendors being awarded a contract and/or potential litigation.

As part of the vendor pre-qualification process, the Procurement team performed an initial compliance check of proponent architects. However, they did not document what criteria were used to make their assessment. Although the audit did not identify anything that would invalidate the selection of the architect, appropriately documenting the criteria that was used to assess proponent vendors as "Compliant" is a crucial step to ensuring sufficient and appropriate diligence is performed over the appropriateness of engaging proponent vendors.

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The City has developed general design and construction standards (DCS) for reoccurring project builds, and the intention of the document is to act as a base reference to use during the planning stages of municipal building projects. Though reoccurring building infrastructure projects often incorporate similar design elements, project specific deviations to design standards are often required. However, the DCS does not include a process to request, review and approve such deviations. In addition, no process exists to review and update the standards on a regular basis. The risk of not defining how deviations from design and construction standards are to be requested, reviewed and approved and who is responsible for enforcement may create delays in the planning process and unnecessary costs to projects. The lack of a formal recurring review and update to the design and construction standards may lead to outdated and or obsolete standards that lead to suboptimal construction design decisions.

Though management has made some progress in updating Project Management Methodologies, Policies and Procedures that were previously identified as part of the Fire Station 7-4 audit, opportunities for improvement remain outstanding, which when implemented, will better comply with PMBOK standards. Project Management Methodologies, Policies and Procedures that are clearly documented and include guidance, will enhance consistency in the methods carried out by project teams. This is vital to ensuring that appropriate steps are taken by all project members at various stages throughout the project, lending to improved decision making and risk mitigation strategies.

This audit was conducted in conformance with the *International Standards for the Professional Practice of Internal Auditing*.

Internal Audit will follow up on the status of outstanding management action plans related to this audit and will report the status to a future Audit Committee meeting.

BACKGROUND

Capital projects are generally funded, planned and executed as individual, discrete projects. Four objectives which are commonly managed on every construction project are scope, cost, schedule and quality. The primary focus of project management is to plan and execute a project in such a manner as to maximize the ability to meet those four primary project objectives.

Individual capital projects can represent a significant investment for the City. Large projects are managed from a variety of aspects including financial, timeliness and meeting deliverables. Audits of individual projects can provide assurance that risks are properly managed. If projects are not properly managed, the greatest risk is they do not meet their deliverables either by not being on time or on budget. Projects that are late or over budget can lead to financial loss, quality reduction and erosion of public trust.

The Carrville Community Centre will include an aquatic centre, fitness studio, gymnasium with upper level running track, teaching kitchen, multi-purpose rooms, childcare area, rental offices, a branch neighbourhood library and district park.

The building will total approximately 92,000 square feet and 4.2 hectares of park space. Construction of the complex commenced in the summer of 2022, with an expected occupancy of autumn 2024.

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OBJECTIVES AND SCOPE

The objective of the audit was to evaluate the adequacy and effectiveness of the internal controls, processes and procedures in place to mitigate the business risks associated with construction projects. This included policies and procedures related to the fiscal, operational, and administrative controls over construction activities, including project scope, cost, schedule, and quality.

Auditing a construction project from beginning to end can provide added assurance, identify problems as they arise, and help improve outcomes. Since the scope of the audit will encompass the complete lifecycle of the project, audit reports will be issued after the completion of the following project phases:

- Planning and Design, Bid and Procurement Phase (Phase 1).
- Construction Phase (Phase 2).
- Close Out Phase (Phase 3).

Phase 1 included a review of:

- Governance and project management framework.
- Qualifying vendors process and awarding of contracts.
- Project management risk identification and mitigation methodology.
- Performance and monitoring.

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DETAILED REPORT

1. Enhance the Project Budget Increase Request Process

Due to pressures caused by the COVID-19 pandemic, labour shortages, supply chain breakdowns, material and shipping cost increases, and risk-based pricing have caused unprecedented cost increases across the construction industry. Market demand for construction of large community centres in the GTA has also been cited by the City's consultants as a contributing factor to sustained price escalations. External consultants anticipate further market volatility for the foreseeable future, with market stabilization in 2023, but not to pre-pandemic levels.

As a result of the shortages, cost increases, and changing construction landscape, it is crucial that an efficient, effective and timely process exist to accurately estimate project costs, and to use this information to support budget increase requests, when required. To ensure that informed decisions are made related to budget increase requests, it is critical that:

- Business Case and Project Charter updates be made in a timely manner to support significant scope amendments and/or requests for additional budgetary funding.¹
- A comprehensive list of options be prepared for Council review and direction in the event that project costs exceed initial budget by a material amount or significant scope amendments are required.

Phase 1 of the Construction Audit of Fire Station 7-4 noted that significant scope amendments were made to the project without the development of a formal business case and bids received from pre-qualified contractors exceeded budget. As a result, it was recommended that business cases be developed for significant capital projects. The following was noted:

- A business case was not developed for the Carrville project. Management confirmed that the Carrville project commenced before the requirement to develop formal business cases and considers the Carrville Project Charter to be adequate compensating support as it includes information that is typically included in a business case. Though the Project Charter was developed in 2020 and a Project Charter update was performed in July 2021 to request for additional funding in the amount of \$4,269,771², no Project Charter update was revisited as part of the \$26,000,000 additional funding request made to Council in February 2022 to award the general contractor tender. An evaluation of the Project Charter and Business Case is typically performed when there is a material change to the scope, cost quality, and/or schedule, and includes a reevaluation of the projects intended outcomes, identifying risks and an assessment of alternatives. The \$26,000,000 additional funding request should have been considered a material change in project cost that would have warranted a Project Charter Update, and/or update of the Business Case.

¹ The Project Management Institute (PMI) states that without a business case, “an organization has no clear basis to prioritize projects, for establishing what is important. Without a business case and some organization-wide agreed measure of “value” there is no means of determining which projects are important, and which are less so...”

² The \$4,269,771 additional funding request related to additional sustainability consulting services, increased structural steel costs required to meet “High Importance” category, and additional construction material premium costs resulting from the COVID-19 pandemic.

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- Council and the general public was not made aware of the potential impact to the Carrville project as a result of supply chain issues and significant material price increases (due to COVID-19 and the continuing robust market activity) in advance of the general contractor tender award. As of October 8, 2021, an additional \$7,349,810 over the approved budget (11.67% more than the approved budget at the time) was estimated by the Cost Consultant in the Class A-100% cost estimate. Accompanying the cost estimate, the Cost Consultant highlighted the intense market volatility, and stated it could not guarantee that the budgeted prices would hold when the project is brought to tender (the tender release date was November 25, 2021). Despite the material estimated budget shortfall and the risk of continued escalation in prices, management decided to accept the risk of the budget shortfall and to request for additional funding from Council upon closing if the Tender award was over (the tender closing date was January 31, 2022).
- All three bids received from the pre-qualified contractors significantly exceeded budget. At the February 8th, 2022, Committee of the Whole, a \$26,000,000 budget increase was recommended (32.44% more than the approved budget). However, management did not propose alternatives for Council consideration. Instead, it only recommended to approve the \$26,000,000 shortfall to award the Tender. The budget increase was approved by Council on February 15, 2022.

The City does not have endless resources. It is imperative that as part of good governance, openness and transparency, management keep Council and the general public apprised of market conditions impacting projects in a timely manner. Specifically, with the price volatility experienced across the construction industry, it would have been prudent for management to notify Council of the trend in advance of the general contractor bid closing date, and to develop alternative courses of action for Council consideration as related to the Carrville project. These alternative decisions should be accompanied by updates to the Business Case and Project Charter, clearly articulating risks and opportunities to the City for changes to project scope, cost, quality or schedule.

Recommendations

We recommend that management:

- Perform a formal re-evaluation of Business Cases and Project Charters in advance of project budget increase requests to Council.
- Prepare a list of options for Council review and direction when material changes to project scope, cost, quality or schedule are recommended by management. These options should be presented to Council in a timely manner, when information becomes available to management.

Management Action Plan

Management agrees with the audit recommendations.

The PMO has initiated the re-evaluation of the City's current Business Case process. PMO will facilitate the development of a Business Case Framework with the organization and obtain approval from SLT-E.

A Project Change Approval Process was formally rolled out to the Infrastructure Development Portfolio in Q2 2022. This process provides specific criteria for projects to identify when a project change approval is required. Updated processes to support the development of business cases, charters and project change control will be introduced to project sponsors, project owners, and project managers.

Project Change Approval Process Triggers

Updates to the Project Change Approval Process will include revising criteria used to identify when the Project Change Control Process should be initiated. Revisions include requiring a Project Change Approval Form when budget shortfalls are encountered prior to awarding a contract.

Business Case and Charter Re-evaluation

The Project Change Approval Process requires project teams to document the options considered to address a project issue and to justify the recommendation to change project scope, schedule, budget and/or status. A Project Change Approval Form, PCAF, captures information related to the requested change. During the development of the PCAF, project teams may be required to re-evaluate the project's original business case and/or project charter. Criteria will be developed to provide guidance on when a re-evaluation of a business case or project charter will be necessary. Leveraging information in these documents will assist with a more fulsome evaluation of the issue and impact of changes on project benefits. The Project Change Approval Process currently required all options be presented to the Program Management Committee. In cases where decisions can only be made by Council, the PCAF will be leveraged to communicate project change information to Council, including options for Council direction. Criteria will be developed to identify when significant scope, cost, quality or schedule changes require Council approval.

Project Change Approval Process updates will be communicated to Infrastructure Development Portfolio staff. Aligned with the management response to audit recommendation # 7, these updates are scheduled to be completed by Q2 2024.

2. *Ensure a Liquidated Damages Provision is included in all Construction Contracts*

Liquidated damages are a common element in Canadian construction contracts and serve as a useful risk mitigation mechanism. Liquidated damages are defined as a pre-estimate of the probable loss that would be suffered from the late completion of a contract. To be enforceable, liquidated damages are meant as a fair representation of losses in situations where actual damages are difficult to determine.

As part of the Fire Station 7-4 construction audit, a liquidated damages provision was not included in the general contractor contract. During the construction, the general contractor fell behind on a number of public-sector construction projects and was later granted court protection from its creditors as it faced more than 200 lawsuits and creditor claims³, while its surety provided funds to allow it to complete existing projects. The result was a work stoppage at the Fire Station 7-4 construction site until the surety provider could help clear the subcontractor liens and gain control of the project. This caused significant delays.

Based on the recommendations from the Fire Station 7-4 construction audit, management agreed that all subsequent projects for new building construction would include a liquidated damages provision, with the value calculated to ensure that it represents the expected costs to the City to continue oversight of the project beyond the completion date. In addition, management updated the liquidated damages clauses in the contract template. Despite the preliminary construction budget for Carrville being ten times more costly than the Fire Station 7-4 project, a global pandemic resulting in unprecedented price increases and construction delays, the liquidated damages provision was removed from the Carrville general contractor contract.

Management stated that the applicability of a liquidated damages provision was discussed with SLTE and the PMO, and it was assessed that the level of risk associated with including a liquidated damages provision would not benefit the Carrville project. The reasons provided for this decision were:

- Further anticipated supply and labour shortages would make it difficult to reasonably estimate the probable loss to the City.
- An incorrectly calculated (inflated) liquidated damages provision runs the risk of being considered a penalty and not enforceable in court.
- A liquidated damages provision would likely lead to proponent contractors inflating their bids.

As part of the decision to exclude a liquidated damages provision:

- A framework, methodology, tools and/or process to assess, evaluate and calculate the applicability of liquidated damages have not been developed at the City.

³ <https://www.theglobeandmail.com/business/industry-news/article-contractor-woes-stall-ontario-public-projects/>

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- The specific criteria which management should consider to assess the applicability of liquidated damages provisions in contracts has not been documented.
- No calculations were performed to substantiate the decision to exclude a liquidated damages provision. For example, estimating what the expected loss from delays may be, what a reasonable liquidated damages provision may be, nor what the expected increase in contractor bids may be if a liquidated damages clause were included.
- Legal Services was not consulted on the appropriateness of removing the liquidated damages provision from the tender contract.

The lack of specified criteria to consider when deciding to include or exclude a liquidated damages provision may lead to suboptimal contract clauses. This puts the City at unnecessary risk. Ensuring that specific criteria must be assessed and documenting the rationale for contract clause inclusion or exclusion promotes a consistent assessment process and supports the decision. The absence of a liquidated damages provision in this contract has limited the leverage that the City may have with the contractor in the event of delays, and the City's ability to serve the community as initially intended. Deciding on damages at the outset gives both parties the opportunity to settle on an amount that they think is fair instead of potentially leaving this decision to the courts, in the event that the City needs to take legal action.

Recommendations

We recommend that management, in consultation with the City Solicitor:

- Require that liquidated damages provisions be included in all construction contracts by default, and only removed on an exception basis upon management assessment and documentation of both qualitative and quantitative factors justifying the decision.
- Develop a framework, methodology, tools and/or process to assess, evaluate and calculate the applicability of liquidated damages.
- Require management consult with Legal Services on the appropriateness of excluding a liquidated damages provision in construction contracts.
- Develop qualitative and quantitative factors for management to assess when justifying the exclusion of liquidated damages provisions from construction contracts.

Management Action Plan

Management agrees with the audit recommendations.

Currently, Procurement templates include liquidated damages provisions in construction contracts. Liquidated damages provisions will continue to be included in all construction contracts by default. As part of the enhancement of the PMO Framework, the Program Management Office, in consultation with Procurement Services and Legal Services, will

develop a framework, methodology, tools and/or processes to assess, evaluate and calculate the applicability of liquidated damages. Furthermore, qualitative and quantitative factors for management to assess when justifying the exclusion of liquidated damages provisions from construction contracts will be developed. Processes and procedures regarding liquidated damages are scheduled to be completed by Q2 2024.

3. *Enhance the Fairness Monitor Process*

Fairness Monitoring is used to support the credibility of procurement procedures for large public sector infrastructure projects. A Fairness Monitor is independent of the contracting body and is appointed to give comfort to those involved in the bidding process that procurement procedures are appropriately followed and that all parties are treated equally during the process. Fairness monitors typically review the procurement process and provide advice on its structure, monitor its implementation, attend evaluation meetings and write a final report indicating whether the process was properly managed and fairly implemented.

As part of the Fire Station 7-4 construction audit, an unsuccessful proponent for the architectural services contract disputed the City's decision to select another vendor, as they were dissatisfied with the process and the ultimate outcome. As a result, management agreed to develop a policy for Engaging a Fairness Monitor, PP-06.

Though a Fairness Monitor was engaged as part of the general contractor selection process and the Fairness Monitor was "not aware of any procurement issues that emerged during the process that would impair the fairness of this initiative", a Fairness Monitor was not considered nor engaged as part of the architect selection process. Based on the criteria in the Fairness Monitor policy, as the overall size of the Carrville architectural procurement can be considered "high value" and "high profile", this should have prompted the consideration of a Fairness Monitor.

The following reasons explain why a fairness monitor was not considered or engaged as part of the architect selection process:

- Per PP-06, though Procurement Services is "responsible for consulting with Client Department on the need for a Fairness Monitor", this activity did not occur. This is the result of the oversight function not operating as intended.
- The policy does not require Procurement or the Client Department to document reasons for not engaging a fairness monitor for a procurement. The risk is that a Fairness Monitor is not engaged when they should be, and as a result, when it is decided that a fairness monitor should not be engaged, reasons for the decision should be documented.

Not engaging a fairness monitor for large procurements may potentially put the City at risk. For example, unsuccessful proponents may claim unethical or unfair selection practices, which can lead to legal action and reputational damage. Rather, weighing the relatively immaterial cost to engage a fairness monitor against the level of risk mitigation it offers may be worth incurring the cost to engage fairness monitor services when appropriate.

Recommendations

We recommend that:

- Client Departments be required to document the rationale for not engaging a fairness monitor based on the criteria established in the policy.

- Procurement Services oversee that Client Departments appropriately assess and document the rational for engaging or not engaging a fairness monitor.

Management Action Plan

Management agrees with the audit recommendations.

Procurement Services will create the criteria for engaging a fairness monitor by creating a checklist or assessment tool to facilitate the assessment. Procurement Services, in consultation with the Client Department, will then assess, determine and document the need for a fairness monitor. Following this assessment, the Client Department will follow Procurement Services' recommendation. Completion scheduled for Q1 2023. Procurement Policy PP-06 will be updated to reflect the changes as applicable.

4. Ensure the Formation and Composition of Proposal Evaluation Committees is Appropriate

As part of the Fire Station 7-4 construction audit, observations related to the composition of the evaluation committee evaluating the design architect submissions were noted. Based on the findings, management agreed to make updates to its guidelines regarding the composition of evaluation committees, including criteria to ensure that members have the necessary experience and technical expertise to appropriately evaluate submissions and are made up of members that are in similar organizational placement.

However, as part of the consulting services (including architect) selection process for the Carrville project, a greater proportion of the evaluation committee members were from Client Departments (three of the four members were from Vaughan Public Libraries, Parks Development & Construction, and Recreation Services), and only one member from Facility Management. In addition, Procurement Services did not act in a supervisory capacity to assess the appropriateness of the committee members selected.

Although we found nothing that would invalidate the final award of the contract, the Ontario General Contractors Association (OGCA) recommends that the selection of any evaluation committee should include members who have the necessary experience and technical information to properly evaluate the Proponent's submission⁴. As the work of the architect is technically focused, it would have been more appropriate for a greater proportion of the committee to have been technically focused. This issue was not experienced as part of the General Contractor selection process, as the five committee members had appropriate technical experience.

Ensuring that the evaluation committee is made up of subject matter experts with a deep understanding of the specific work to be performed mitigates the risk of unqualified vendors being awarded a contract and/or potential litigation.

Recommendations

We recommend that:

- Management enhance the guidelines regarding the composition of evaluation committees to ensure a greater proportion of members have experience and technical expertise to appropriately evaluate proponent submissions.
- Procurement Services act in a supervisory capacity to assess the appropriateness of the evaluation committee members.

Management Action Plan

Management agrees with the audit recommendations.

⁴ Ontario General Contractors Association, *A Guide to Prequalification of Contractors (Section 6.3 Evaluation Process)*

Procurement Services in collaboration with the Client Department, will identify and assess the appropriateness of the evaluation committee members with respect to Subject Matter Expertise. Existing applicable Procurement Policy and Procedures will be updated as applicable.

Procurement Services will create an evaluation guidebook and conduct an evaluator's meeting prior to evaluations that will outline the evaluation committee members roles and responsibilities.

Updates to Procurement processes are scheduled for completion in Q1 2023.

5. Document Vendor Pre-qualification Criteria Assessed

Vendor pre-qualification screening is an important process to ensure that only appropriately qualified vendors are invited to submit bids for large municipal building projects. Prequalification processes may help mitigate the risk of project cost overruns, delays in project completion, and failure to deliver on project objectives.

The City used both Request for Pre-Qualification (RFPQ) and Request for Proposal (RFP) to evaluate proponent general contractors and architects, respectively.

The purpose of an RFPQ is to pre-qualify proponent vendors to ensure they can deliver project specific requirements before they are provided the opportunity to bid on the contract. As part of the RFPQ initial compliance check of proponent general contractors, members of Procurement Services screened the vendors' submission documents against Mandatory Submission Requirements. The criteria and results of the compliance check were documented in a Compliance Report and signed by the reviewers as evidence of the assessment.

In contrast, as part of the RFP compliance check for proponent architects, the Compliance Report did not indicate the specific criteria that were used to assess the architects. Instead, the report only noted that the vendors were "Compliant". Per discussion with Procurement Services, the vendors were assessed against the *Disqualifying Events* section of the RFP, and any vendors that would have met any of these criteria would have been disqualified from the submission. Although we found nothing that would invalidate the selection of the architect, clearly documenting the criteria that were used to assess proponents is critical to ensure that all criteria have been appropriately considered as part of the compliance check.

Recommendations

We recommend that Procurement Services update the RFP Compliance Report to include the specific criteria to be used to assess proponent vendor pre-qualifications.

Management Action Plan

Management agrees with the audit recommendation.

Procurement Services will update all bid compliance reports to include the specific criteria used to assess proponent pre-qualifications. These updates are scheduled for completion Q4 2022.

6. Enhance the Design and Construction Standards Document

As part of the Construction Audit of Fire Station 7-4, it was identified that the City did not have general design and construction standards for reoccurring building infrastructure projects. Reoccurring building infrastructure projects often incorporate similar design elements. Documenting these general design and construction standards accelerate the construction planning process by streamlining decision making for reoccurring designs, help consultants prepare tender packages by setting expectations, and aid in identifying design challenges in advance of the commencement of construction. As a result, the City developed Design and Construction Standards (DCS) in Q1 2022 for three recurring municipal building types: fire stations, community centres and libraries.

The intention of the DCS is to act as a base reference document to use during the planning stages of municipal building projects. The document includes specific planning principles for each of the building types, a Sustainability Enhancement Brief⁵ and a Performance Specifications document which captures both the common needs of all reoccurring building types as well as any specific requirements unique to the reoccurring building types.

Although progress has been made in developing the DCS, the following observations were identified:

- A process or policy to request, review and approve deviations to design standards has not been documented. This includes who is responsible to enforce adherence to the design and construction standards.
- A process to review and update the DCS on a regular basis has not been documented.

Although the DCS strives to include overarching design elements, in certain circumstances there may be operational need to deviate from the standards. The risk of not defining how deviations from the design and construction standards are to be requested, reviewed and approved and who is responsible for enforcement may create delays in the planning process and unnecessary costs to projects. The lack of a formal recurring review and update to the design and construction standards may lead to outdated and/ or obsolete standards that lead to suboptimal construction design decisions.

Recommendations

We recommend that management:

- Develop a policy for the request, review and approval to design and construction standards deviations, including roles, responsibilities and accountabilities.
- Develop a process to review and update the DCS on a regular basis.

⁵ The Sustainability Enhancement Brief provides guidance on energy and emission performance, building commissioning, on-site renewals, air tightness, metering and benchmarking, virus spread mitigation strategies, ventilation, wellness and quality of design, low impact materials, ozone depleting compounds, transportation performance, water management performance, water performance, natural heritage considerations and social sustainability.

Management Action Plan

Management agrees with the audit recommendations.

Infrastructure Development will develop a Design and Construction Standards Framework to request, review and approve the design and construction standards deviations and general updates for all infrastructure. The framework will include governance, processes, roles and responsibilities and tools. The Framework is scheduled for completion Q3 2023.

Existing Products, Standards and Specifications Review Committee governs this framework by an established term of reference. The Committee consists of delivery and operations representatives. Terms of reference will be reviewed and updated in accordance with the changes identified above.

7. *Continue to Enhance Project Management Methodologies, Policies and Procedures*

Since the completion of the Construction Audit of Fire Station 7-4, the Program Management Office (PMO) has developed a framework highlighting key activities involved in the delivery of projects, including Project Pre-work, Project Approval and Project Management phases. Updates to the Project Management Procedures Manual (PMPM) were also performed, including requirements for individual Project Charters and a Project Change Order process.

Though management has made progress, some previously identified improvements remain outstanding to better comply with PMBOK standards. These include:

- Formal phase gates⁶ have been considered as part of the Carrville project, but the concept of phase gates have not yet been documented in the manual. Adding a phase gate approach and guidance to the manual would improve consistency in the application of this methodology and ensure logical points of review between project phases or milestones.
- Facility Management uses a class design cost process for estimating costs. However, this process has not been described in the manual. Documenting this process in the manual improves consistency in the application of the class design cost methodology related to cost estimation precision.
- The manual refers to a risk management plan but does not provide guidance on how to develop and execute the plan. Having a comprehensive risk management plan helps ensure that high priority risks are effectively identified and managed.
- Monthly Project Reporting includes key project risks, risk ratings and mitigation strategies. However, the risk ratings assigned do not explicitly reference severity and likelihood criteria in determining the risk ratings. Applying a risk rating methodology supports a consistent assessment of risks and lends to improved decision making and risk mitigation strategies.

Recommendations

We recommend that management continue to up-date the Project Management policies, procedures and methodologies to better comply with PMBOK project management practice guidelines.

Management Action Plan

Management agrees with the audit recommendation.

PMO has initiated a project to enhance the project and program delivery methodology. This will include processes, procedures, governance and tools to standardize project delivery within the organization.

⁶ A project following a phase-gate process is divided into distinct stages or phases, separated by decision points or gates. At each gate, a continuation decision is made on forecasts and information available at the time, including the business case, risk analysis, and availability of necessary resources.

To date the PMO has focused efforts and prioritized procedures associated with project identification, monitoring, control and change. All Infrastructure Development projects must:

- be supported by a project charter
- have their budget, cashflow, schedule, issues and risks status updated monthly
- be presented monthly to the Program Management Committee, PMC
- document and request approval if project changes meet specific criteria
- inform PMO if new projects are required.

PMO has initiated a project with the objective to enhance additional project management practices with an estimated completion Q2 2024.