

MAJOR CAPITAL PROJECT UPDATE

Recommendation

That the January 30, 2024, Integrated Infrastructure Services report IIS02122, be received for information.

Requested Action	Information only		
ConnectEdmonton's Guiding Principle	ConnectEdmonton Strategic Goals		
CONNECTED This unifies our work to achieve our strategic goals.	Urban Places		
City Plan Values	ACCESS		
City Plan Big City Move(s)	A rebuildable city	Relationship to Council's Strategic Priorities	Mobility Network
Corporate Business Plan	Managing the Corporation		
Council Policy, Program or Project Relationships	<ul style="list-style-type: none"> • C591 - Capital Project Governance Policy • Standard A1406A - Project Management for Capital Projects • C555 - Public Private Partnership (P3) 		
Related Council Discussions	N/A		

Executive Summary

- Administration initiated an independent major capital project review to evaluate levels of oversight and project management practices.
- Two external parties, the University of Alberta Construction Innovation Centre and Stantec Consulting Ltd., completed the review. This approach paired an industry consultant with international experience and academic experts to offer insights into best practice application.
- The review concluded Administration has an established major capital infrastructure project management framework that is aligned with industry best practices.

MAJOR CAPITAL PROJECT UPDATE

- The external reviewers verified the City of Edmonton's commitment to maturing project management practices. While challenges in project delivery are not unique, the findings highlighted the City's adherence to comprehensive planning, risk assessment and transparency.
- The reviews (provided as Attachments 1 and 2) confirmed a culture of continuous improvement at the City of Edmonton that focuses on lessons learned, enhancing practices and ongoing improvements.
- The external reviewers provided context that even when best practices are followed, construction projects may experience delays or budget pressures due to a combination of complex factors. This is an inherent experience in the wider construction industry.

REPORT

In alignment with The City Plan, the City of Edmonton is committed to fostering a healthy and climate-resilient urban landscape that supports growth and encourages new life into its communities. Infrastructure initiatives play a central role in shaping the city's future.

Major capital projects are defined within the City as capital profiles that have expenditures of at least \$20 million within a budget cycle or profiles that are highly strategic, complex, include many stakeholders, have major constraints and/or include a high level of risk.

This report presents the findings and recommendations of a comprehensive external review of major capital project management practices. Administration initiated the review to ensure appropriate levels of oversight and project management practices were in place and evidenced in project delivery. The review was completed by two external organizations.

The scope of work included a review of governance and oversight, project management practice benchmarks, performance evaluation, environmental scanning, project delivery method assessment, procurement practices and industry trend analysis.

The Evolution of Project Management at the City

Since 2008, project management practices within the City evolved significantly, specifically with the following milestones:

- **Establishment of the Project Management Centre of Excellence:** In 2010, a Project Management Office (PMO) was created, evolving into a Project Management Centre of Excellence (PMCE) in 2016. The PMCE plays an integral role in enhancing Administration's project management acumen, knowledge and tools by keeping processes and systems relevant and effective.
- **Introduction of Project Management Standard:** In 2013, an Administrative Directive for Project Management for Construction Projects required consistent adherence to construction project best practices. In 2023, the directive was updated to a Standard¹ for Project Management for Capital Projects. This standard aligns with Council Policy C591 - Capital Project Governance.² The standard requires that all 1) capital projects follow established

¹ [Standard A1406A - Project Management for Capital Projects](#)

² [City Policy C591 - Capital Project Governance](#)

MAJOR CAPITAL PROJECT UPDATE

project management practices and 2) performance standards for project management are established, monitored and controlled for all capital projects.

- **Project Management Reference Guide:** In 2013, Administration established the Project Management Reference Guide (PMRG) to provide a consistent approach to project management, incorporating industry best practices. As part of its role, the PMCE continues to update the PMRG, completing a significant 2022 update which enhances user experience and adapts to the evolving project management landscape.
- **Reorganization and Role Clarity:** In 2016, a consolidation of construction-related activities under one department fostered project management practice consistency. The structure of the department transitioned from asset-based infrastructure portfolios to function-based portfolios. This led to a review of all project management positions to ensure uniformity and alignment. This approach enhances project integration and service to Edmontonians by considering a holistic approach to infrastructure improvements; for example, multifaceted projects are delivered by one project manager.
- **Implementation of Develop and Deliver Approach:** In 2017, Council Policy C591 - Capital Project Governance outlined a “develop and deliver” approach for capital projects, referred to as the Project Development and Delivery Model (PDDM). Administration’s organizational structure and project management practices support this approach, with an emphasis on the importance of informed investment decisions. The PDDM promotes additional design development to gain a greater level of accuracy for scope, schedule and budget before significant budget decisions are considered.
- **Performance Reporting:** Project performance reporting has continually evolved from the introduction of quarterly performance reporting in 2012 to the use of project health indicators (red, yellow and green). Performance reporting thresholds established in 2019 are consistently maintained and support enhanced project performance tracking. Launched in 2017, the Building Edmonton website (building.edmonton.ca) is updated quarterly to show the public how projects are progressing in the phases of the PDDM. Data from Q4 2019 to Q4 2022 indicates improvement trends in projects being delivered on time and within budget. Projects are also delivered with purpose, aligned with The City Plan and meeting the City’s quality expectations.
- **Project Audits:** Recommendations made by the Office of the City Auditor (OCA) further demonstrate Administration’s evolution and improvements within the project management space. Recommendations in the *2008 23rd Avenue & Gateway Boulevard Interchange Project Review*³ noted inconsistent project practices. Following this audit the OCA initiated ongoing capital project advisory assistance reviews. As a result of the various improvements and changes implemented through the audit and reviews, the OCA documented evidence that Administration had significantly improved project management. As such, the OCA chose to close the multi-year capital project advisory assistance reviews in 2017. More recently, the *2022 Project Management of Transportation Infrastructure Audit*⁴ highlighted “[Administration] has established effective controls to manage project budgeting, scheduling and quality of

³ [23rd Avenue & Gateway Boulevard Interchange Project Review](#)

⁴ [Project Management of Transportation Infrastructure Audit](#)

MAJOR CAPITAL PROJECT UPDATE

transportation infrastructure projects.” The 2023 *Valley Line LRT P3 and Delivery Audit*⁵ indicated Administration was overseeing the project to achieve cost-effective and service delivery expectations. Additional details on these, and other related major capital project audits, are outlined in Attachment 3.

Administration established a framework to govern project management and is actively implementing project performance enhancements. Administration continues to refine its project methodologies, acknowledging these elements play a pivotal role in successfully delivering capital projects for Edmontonians.

Major Capital Project Review

The external review was undertaken to assess and compare the policies, processes, frameworks, and practices employed by Administration to manage major capital projects.

The University of Alberta’s Faculty of Engineering established the Construction Innovation Centre to create a focal point of academia; industry and government to come together to meet the challenge facing construction industries and to create high-impact innovations across the construction engineering spectrum. Their review (provided as Attachment 1) focused on whether Administration has:

- Implemented effective processes for governing and overseeing major capital projects, ensuring their timely completion within budgetary constraints and meeting the desired quality standards
- Implemented standardized project management frameworks and practices for the comprehensive planning, execution, monitoring, and control of project operations
- Provided transparent information on performance to key stakeholders and the public
- Employed fair and appropriate approaches in the procurement of consultants, contractors, and suppliers

Stantec Consulting Ltd. (Stantec) is a global design and delivery firm with experience in engineering, project management, and business management for private and public sector clients. Their review (provided as Attachment 2) was led by Stantec’s Chief Practice and Project Officer, whose responsibilities encompass leading the positioning, pursuit, and governance of Stantec’s largest projects, including all alternative project delivery for the Company. The Stantec review focused on:

- Assessing project delivery method selection processes including underlying criteria.
- Engaging a number of industry associations, owners and consultants/contractors to provide industry insights.

Findings

The reviews confirmed that Administration has an established project management framework that is aligned with current best practices and is being utilized to execute major capital infrastructure projects. Administration has themed the findings as follows:

⁵ [Valley Line LRT P3 and Delivery Audit](#)

MAJOR CAPITAL PROJECT UPDATE

1. Validation of Project Practices

- Governance and Oversight: Administration effectively establishes oversight through project oversight committees, comprising key stakeholders who monitor progress and make critical decisions.
- Project Management Practices: Aligned with industry best practices, Administration's centralized approach ensures consistency, efficiency and timely information exchange. The framework (Policy C591, the Project Management Reference Guide, PDDM) follows industry best practices and is comparable to project management systems developed by other major high-performing Canadian cities.
- Project Delivery Method Selection: With controls and multiple review stages, Administration's approach is consistent with industry practice and recognizes the need for flexibility and project-specific considerations.
- Procurement: Administration undertakes standardized, fair and transparent procurement practices for all capital projects.
- Project Development and Delivery Model (PDDM): Comprehensive planning that incorporates risk assessments and contingency strategies can effectively reduce, but not eliminate all consequences of unexpected difficulties and facilitate well-informed decision-making throughout the project's duration. Administration is adhering to the broader philosophy of PDDM.

2. Transparency

Administration provides transparent, exhaustive, timely, interactive and easily accessible reporting of project updates to the public. The reviewers noted that Edmonton's innovative reporting is a best practice for other Canadian cities to consider adopting.

3. Project Performance

Recent research suggests that the performance of large projects may not meet common expectations (Flyvbjerg, 2023)⁶. The research is grounded in data from a comprehensive study of 16,000 projects from 20 different fields in 136 countries, providing insights into their typical results. Only 8.5 per cent of these projects successfully achieve both cost and time targets, and only 0.5 per cent manage to excel in cost, time and expected benefits.

As per the Financial and Corporate Services report provided at the September 12, 2023 City Council meeting (FCS01997 - Capital Financial Update - June 30, 2023), most significant capital projects, by approved budget weight, fall within acceptable tolerances for budget (99.6 per cent) and schedule (82.0 per cent). Acceptable thresholds are defined in Financial and Corporate Services report CR_7394, June 30, 2019.

⁶ Flyvbjerg, B. & Gardner, D. (2023). *How Big Things Get Done: The surprising factors that determine the fate of every project, from home renovations to space exploration and everything in between*. Penguin Random House.

MAJOR CAPITAL PROJECT UPDATE

Insights from Industry

The review by Stantec included interviews with other owners, designers, contractors, financial advisors, insurers and legal firms. Comments provided represent general industry trends and were not directed at the City of Edmonton's practices.

The key observations from these interviews include:

- Project delivery method selection should consider all options, with objective cost and non-cost criteria,
- Low-bid prices upfront may not guarantee long-term cost-effectiveness, and
- Collaboration and fair risk allocation are essential for project success.

The commentary from external stakeholders reinforced the City is not unique in regard to navigating major construction project challenges; however, Administration's current practices and approaches to project delivery provide the oversight and tools to address challenges.

Furthermore, Administration maintains its commitment to building and maintaining relationships with industry partners. Relationships are crucial for well-informed decision-making, maintaining public confidence and executing policies with efficiency.

Opportunities for Improvement

The independent review also indicated areas of improvement that can be summarized into two categories:

1. Process Improvements

While Administration already follows standardized governance and project management practices, there were recommendations for process improvement consideration to continuously improve.

Recommendation	Current Status	Actions
Modify the project development and delivery (PDDM) gated process for different delivery methods	The gated process of PDDM undergoes regular review and updates. An evaluation of different delivery methods is underway.	<i>In progress:</i> This is part of the 2024 PMCE improvement workplan.
Consider the viability of engaging Project Managers and key stakeholders earlier in the project	As PDDM processes mature, the <i>lead</i> and <i>support</i> Project Manager roles continue to evolve between project phases. Administration makes every effort to engage all applicable parties as early in the project as possible.	<i>In progress:</i> Administration will continue to enhance opportunities of early involvement.
Globally adopt earned value analysis (EVA) as a cost control tool	Administration is undertaking continuous maturity in cost estimating, monitoring and forecasting through processes and training opportunities.	<i>In progress:</i> While EVA is used on some projects, mandating its use as the only cost control method does not align with the City's fit

MAJOR CAPITAL PROJECT UPDATE

		for purpose approach (all projects not being equal, where derived value and outcomes can vary).
Continue to emphasize record keeping	Document management is an ongoing continuous improvement activity. PDDM process informs minimum key records for projects. Administration is also working on refreshed training for records and information management.	<i>In progress:</i> Administration will continue to emphasize record keeping.
Consider developing and reporting on consistent quality performance measures	While there is no single measure that can all-inclusively reflect “quality” in the context of the City’s varied infrastructure portfolio, Administration will use available product and process indicators to collect, report and analyze quality data. In 2022, a quality metric for transportation infrastructure projects was put in place.	<i>In progress:</i> Administration will continue to evolve opportunities.
Assess the benefits of using Qualifications Based Selection (QBS) methods	QBS is an approach defined as any procurement methodology that does not evaluate price as part of the selection process. It is already a procurement method option utilized where appropriate. Administration has implemented a Value Based Selection (VBS) procurement approach, where the majority of sourcing events have a combination of market driven price and quality criteria as a component of bidder evaluation.	<i>In progress:</i> Administration currently uses QBS and VBS procurement methodologies.

2. Project Cost Thresholds

While the City has made great strides toward project management excellence and transparency when compared to other owners, the dollar thresholds currently being adopted for oversight and evaluations of projects are low compared to current market conditions. To strengthen alignment with industry and market conditions, the external reviews suggested re-visiting current policy and procedure decisions that set thresholds for major capital projects including:

- Increase the threshold for major capital projects definition from \$20 million to \$100 million.
- Review City Policy C555 - Public Private Partnership⁷ threshold for initial P3 screening from \$30 million to \$500 million.
- Streamline administrative reporting and approval processes, which would include assessing the \$2 million and \$5 million thresholds for growth and renewal stand alone profiles.

⁷ [City Policy C555 - Public Private Partnership \(P3\)](#)

MAJOR CAPITAL PROJECT UPDATE

Summary

As Edmonton grows towards a city of two million people, construction will not only happen in ways that make the city bigger, but more livable, resilient and sustainable. Construction projects are inherently complex and face a multitude of challenges, as experienced on the Valley Line Southeast LRT project and outlined in Attachment 4. Administration strives to strike a balance between the expectations placed on projects, the availability of resources and the tolerance for risks. This balance is underpinned by a concerted effort to institute comprehensive planning and estimation practices as cornerstones of project success. Administration continues to drive improvements to support efficient and effective delivery of capital infrastructure projects.

Community Insight

As detailed in the body of the report, the reviews considered insights from other owners, designers, contractors, financial advisors, insurers and legal firms and their perspectives contributed to the findings provided in Attachments 1 and 2. Consultant and academic partners carried out research that compared the quality and level of detailed information that was made available to communities in relation to major construction projects.

GBA+

GBA+ was not completed as part of this project review. The scope of the project was to analyze in-house construction project performance data and benchmark City performance against peers across North America. The projects chosen for internal analysis would have completed their own GBA+ work representative of the level of maturity of GBA+ at the time the public engagement and associated engagements were completed. Administration relies on GBA+ to inform decision-making processes, ensuring diverse perspectives and needs are considered, leading to more equitable and inclusive outcomes.

Attachments

1. University of Alberta Analysis
2. Stantec Analysis
3. Project Audits
4. Valley Line Southeast LRT