



## CITY OF ST. ALBERT ADMINISTRATIVE BACKGROUNDER

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### **TITLE: CAPITAL PROJECT COST & PROCESS REVIEW IMPLEMENTATION PLAN**

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Administration is providing the attached document entitled Capital Project Cost & Process Review Implementation Plan as an information Item at this time in an effort to help reduce the workload on the Council Agenda. The relevance of the Implementation Plan is related to Councillor Hughes November 7, 2016 motion;

*“That Administration bring forward to Council the selected improvements to the City’s current practices and policies for preparing capital charter estimates and standards and include the Implementation timeline for these changes before Q2 of 2017”.*

As the author of this report and the current lead on the implementation of this study, if there are any questions, clarification required or comments that Council Members would like addressed, I can be contacted for assistance.

#### **BACKGROUND:**

In 2016 Administration was tasked by Council to undertake a review of the Capital Budget Process and as a result the Capital Project Cost and Process Review study was undertaken and presented to Council on October 3, 2016 as an information item.

The study included the following scope elements:

- A survey of six key municipalities to understand practices currently in use across the region and the similarities differences with the City of St. Albert’s current practices;
- A review and analysis of recommended estimating practices and standards for the purposes of identifying relevant suggestions for improving City practices; and
- Review and validation of specific project charters created for key City of St. Albert capital projects planned for the next 3 years.

SMA Consulting was the lead consultant in the development of this study.

## Summary of the Study

### Municipal Survey

The survey showed above all that the City of St. Albert's practices are not significantly different from other municipalities of comparable size. Not only were similar practices for estimating employed and similar challenges encountered across municipalities, but many municipalities expressed interest in implementing innovative estimating approaches already in place at St. Albert.

Similar uncertainties in project scope and budget were being faced in all instances. This challenge is often compounded by constraints in resource availability, so that the majority of estimates undertaken in cities of comparable size to St. Albert are prepared by external cost or consulting engineers. For instance, most of the municipalities surveyed encounter variation between the estimate and the construction bid; a major challenge for municipalities is to predict the market. These challenges are all in keeping with issues that the City of St. Albert is also facing.

Larger municipalities (City of Edmonton and City of Calgary) have been able to adopt different methodologies partly due to the nature and size of the projects undertaken; in some cases, these practices have been modified to form recommendations in the Study. Nevertheless, all municipalities faced challenges in their estimating practices and were looking for ways to improve. As exemplified by the decision to implement this study, St. Albert appears to be taking a lead in responding to such key challenges.

### Study Review and Recommendations

Based on SMA's observations of the City's existing estimating process and practices, a comparison of estimating practices in other municipalities, and a review of best and recommended practices advocated by industrial and academic bodies (including the AACE International [American Association of Cost Engineers], PMI [Project Management Institute], and Construction Industry Institute [CII]), SMA has identified fifteen recommendations for consideration by the City of St. Albert. These recommendations have been discussed and refined through workshops with City personnel. Notably, many of these recommendations build upon innovations and practices that are already being implemented at the City. The overall recommendations of the study follow:

#### Charter Development Process:

1. Focus development effort on projects planned to commence within the next three years.
2. Use a structured scorecard approach to enhance and measure project scope definition and assist in aligning the project team.

3. Implement a more formal scoping exercise at the initiation of the project, which includes a broader range of City personnel and results in a documented scope statement.
4. Allocate funding to implement planning exercises such as value engineering and constructability reviews.
5. Implement formal quantitative risk assessment of the project cost and schedule.
6. Use the expertise of consultants when estimating large and complex projects.
7. Implement a more robust records management system.

#### Estimating Process:

8. Implement additional training to standardize and enhance cost estimate knowledge.
9. Use standardized tools for documenting and applying historical cost information to enhance the quality of the estimates early in the project.
10. Adopt a City-wide estimate classification system and explicitly include degree of accuracy in charter documents.
11. Align design contingency allowance with identified and quantified risks.
12. Implement a mandatory Basis of Estimate (BOE) document for all projects.
13. Implement a detailed review, validation, and documentation process for project estimates at each project milestone.
14. Revise operating estimate guidelines to provide clearer methodology and implement additional training to standardize and enhance cost estimate knowledge.

#### Budgeting Process:

15. Establish a dynamic Management Reserve approach to reflect realization of unidentified risks or required scope changes at the Senior Leadership Team level.

### Implementation Plan

As requested by Council Hughes, Administration undertook further evaluation of the study's 15 recommendations and developed the attached implementation plan.

This review concluded that all 15 recommendations would indeed enhance the Capital Budget Process and could be done so without an increase in operational costs. As noted, it was recognized that a number of the fifteen recommendations were already in varying stages of implementation while some are new.

The Study has been passed on to the Corporate Business Planning and Budget Committee (CBBC) and a subcommittee has been established to initiate the implementation of all 15 recommendations. The subcommittee will review the actual estimates for the project charters contained within 2018 - 2020 and rationalize them for adjustment to the 2018 - 2027 Budget Process. The implementation will also initiate and update to Council Policy C-P&E-02 Capital Project Management, and will be brought forward for Council's consideration at the appropriated time during the implementation process.

This was an exceptional review to undertake and the results of this work will enhance the City's budgeting process and with the work of the Corporate Business Planning and Budget Committee the process will continue to improve.

Report Date: May 1, 2017

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Committee/Department: Development Services

General Manager: Gilles Prefontaine

City Manager: Kevin Scoble

**Capital Project Cost and Process Review Implementation Plan**

SMA Recommendations			Administrative Response						
#	Recommendation	What will adopting this recommendation do?	Other implications of adopting this recommendation	Current Status of Recommendation	Administrative Reaction	Planned Launch/Timing	Resource Requirement	Degree of Council Involvement	Impact of Recommended Response/Output
1	Focus development effort on projects planned to commence within the next three years.	This will enable administration to use its resources on projects that are imminent. Focusing on those resources will yield better estimates.	Strategic level estimates for projects outside the 3-year window will not be as accurate. Once those projects are moved to the design phase, their estimates will be enhanced and variations explained.	The New Facility Predictive Model identifies a three year project planning cycle., This recommendation is also consistent with Council Policy C-P&E-02, which also identifies a three stage estimating cycle for capital projects with each stage containing more detail and becoming increasing accurate.	This recommendation is supported.	The CPO office will review SMA recommendations re: capital project charter review, and provide any refinement in time for the 2018 budget presentation.	no additional resources required.	review through budget process	consistency of approach and information in each project charter within the 3 year cycle
4	Allocate funding to implement planning exercises such value engineering, design reviews, constructability reviews, and stakeholder consultation on projects as applicable.	The current budgeting process requires a charter before a project receives funding. The charter requires reasonable planning to yield firm results. Allocation of this budget enables this to take place.	The funding model/ budgeting process needs to be revised to enable this. A block funding for all projects as a percentage of annual capital expenditure will accomplish this.	this is built into the new facility predictive model (NFPM) for new capital growth project, for each individual project.	the City recommends a project specific funding approach to this recommendation	already in place through the NFPM, with exception for projects that were in mid-process	no additional resources required.	review through budget process	validation of project need, constructability, costs, location for project, etc.
10	Adopt a City-wide estimate classification system and explicitly include the degree of accuracy in charter documents.	This will make the relationship between scope definition and estimate accuracy clear and will emphasize the degree of accuracy of a given estimate during the review process.	None.	currently Administration adheres to C-P&E02, why itch does not require that the degree of accuracy be included in each project charter	Administration recommends to update C-P&E, to reflect the AACE classifications of cost estimate and reflect the degree of accuracy in project charters	administration will include the degree of accuracy for project charters, at least for the 2018-2020 cycle, in time for the 2018 budget process	no additional resources required.	review through budget process	greater transparency and articulation of the degree of accuracy of the cost estimate
12	Implement a mandatory Basis of Estimate (BOE) document for all projects.	A structured approach that requires every estimate to have the BOE will make it easier to review estimates by others and to explain deviations when they occur.	More work on the part of the estimator or their agent.	Administration has an in-house document that serves a similar purpose, and it is used for both capital and operating estimating	Administration supports this recommendation and intended to use the supplied template (Appendix F) as the standard.	Administration will include the BofE estimate document for the projects degree of accuracy for project charters in time for the 2019 budget process	no additional resources required.	review through budget process	greater and consistent depth of information documented to control the critical aspects of a cost estimate to mitigate project cost risk.
15	Establish a dynamic management reserve approach to reflect realization of unidentified risks or required scope changes at the Senior Leadership Team level.	Management reserve is a very effective tool to address changes that cannot normally be anticipated for a project. It is an umbrella contingency that makes it less onerous on Council and management to deal with every change that may not be significant to the project.	Requires Council directive and changes to the budgeting process.	a management reserve is available through City Council Policy, C-CAO-01 City Manager Delegations. This policy provides the CM with the authority to deviate from the approved budget by up to \$20,000 and 10% of the project budget.	Administration recommends that the future of this recommendation be deferred to the long range financial plan discussion. To be reviewed after COW January 16 meeting	to be determined after the long range financial plan discussion with Council	no additional resources required.	to be determined	The intention of this recommendation is to allow access to additional capital project funds in the event of unanticipated cost events occur
2	Adopt a structured scorecard approach for projects to enhance and measure project scope definition and assist in aligning the project team.	Will enhance quality of the estimates as it ties the scope's level of development to specific measurable parameters that would be easy to follow by those accepting or reviewing an estimate. The scores will facilitate the project moving from one gate or milestone to the other in the project's lifecycle.	Requires development of the parameters that need to be quantified for each department and by project type. Requires staff training	Administration reviews project charters to consider scope definition, there is no structured score card in place currently.	Administration supports the recommendation to implement a structured score approach, similar to the recommended PDRI.	need to develop the PDRI tool and required training plan.	no additional resources required.	review through budget process	consistent scope definition and consequent cost estimation
5	Implement formal quantitative risk assessment of the project cost and schedule.	A formal risk assessment will enhance estimates by virtue of clearly outlining the uncertain elements of the project and the events that could impact the project. This helps with documenting the basis of the estimate and with accuracy and transparency	May be used as part of, or in conjunction with, the planning processes given under recommendation A.4 above.	the city currently has a risk assessment template, that is available for use. Not required through policy or process to use.	Administration supports this concept in conjunction with the scoping exercise (recommendation #2).	update the current risk assessment tool and incorporate the use in the charter development process.	no additional resources required.	review through budget process	holistic evaluation of project considering scope and risk
11	Align design contingency allowance with identified and quantified risks.	This will enhance the estimate as contingency is often a significant portion of the budget and quite often incorrectly applied as a rough percentage of costs.	This will require implementation of recommendation B.5 first as it relies upon its findings.	the city uses external consultants to validate contingencies	Administration supports this concept, and agrees that it aligns with the risk register and PDRI	this practice is already available	no additional resources required.	included in the budget process	the risk register will identify the required design contingency
7	Implement a more robust records management system.	Organized documents play a significant role in validating an estimate or understanding its basis. Having such a system will greatly improve retrieval of data for validation purposes or for future estimates.	Requires a study to determine the optimal record management approach and a computer system to facilitate storage and retrieval.	Office of the CPO retains copies of the project charters. Project owner departments retain their own records.	Administration supports this recommendation. Need to investigate and evaluate the various systems and in-house approaches, to detemir the optimal approach.	Consult with records management unit to develop process and schedule	no additional resources required.	none	consistent records management program to ensure a records management approach that provides corporate alignment, and a sound approach to ensure appropriate management of records.
3	Implement a more formal scoping exercise at the initiation of the project, which includes a broader range of City personnel and results in a documented scope statement.	Provides a means of getting input from all stakeholders and agreement on the basis of the scope for the project. The process will also lead to more specific scope which will enhance the quality of the estimate.	Adds a formal potentially facilitated session of all stakeholders. More time commitment may be required, but in general will save everyone time.	Scoping depth is established by the lead department. CPO is the final reviewer.	need to look at building this into the project charter development process and timeline. Makes sense to have a scoping review at developmental stages of the process.	intent is to establish a pilot mechanism for the 2018 growth projects, and the refine it for 2019 forward. Will work with the CBPBC to determine schedule.	no additional resources required.	none.	solid collaboration and understanding of project scope and impact on other projects.
6	Utilize, as appropriate, the expertise of consultants for large and complex projects.	Independent estimators and other external consultants can provide experience-based estimates based on their subject-matter expertise and background for complex projects.	Costs for projects would increase.	agreed	Consultant expertise is required for growth and utility projects, not linear surface infrastructure	to be determined on a project by project basis. link to scope and estimating discussion	no additional resources required.	included in the budget process	provied greater estimate accuracy and reduce contingency requirement.
8	Implement additional training to standardize and enhance cost estimate knowledge.	Training can improve the understanding of requirements and how to apply the process.	There are costs involved in training, including employees' time.	currently provided to CPO project management staff through professional project management training	agreed, for engineering p.m.'s	in process	no additional resources required.	none	increased in-house knowledge to supplements external expertise
9	Use standardized tools for documenting and applying historical cost information to enhance the quality of the estimates early in the project.	Can be implemented in conjunction with B4. In general, adopt and use a standard system like RS Means which will not require upkeep and development.	Cost to subscribe to RS Means. Minimal (perhaps few thousand dollars annually)	currently use past experience to provide parametric estimates	agreed, this will be included in the BofE process	through implementation of records management and additional tools/training his will be realized.	no additional resources required.	none	increased consistent application of information.
13	Implement detailed review process for project estimates at each project milestone	Reviews should be part of QC on estimates. Implement with B1	Only in-kind cost of reviewer's time	currently pms' collaborate to test project estimates through the various stages.	Administration supports this recommendation	through implementation of previous recommendations, the stages review of estimates will provide further clarity	no additional resources required.	none	increased consistent application of information.
14	Revise operating estimate guidelines to provide clearer methodology and implement additional training to standardize and enhance cost estimate knowledge.	Minor enhancement to existing document.	None	operating estimate guidelines are in place	Administration supports this recommendation	improve training to ensure consistent understanding through the incorporation	no additional resources required.	none	increased consistent understanding and application of information.